APPRENTICESHIP CURRICULUM (OPTIONAL TRADE)

Rubber

Rubber Product Finishing Operator V1

Course Code: CO072200021

☒NAPS ☐Non-NAPS

NSQF Level: 4

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Course Details

1.	**Course Name**	**Rubber Product Finishing Operator V1**
2.	**Course Code**	**CO072200021**
3.	**Apprenticeship Training Duration:** *(2 to 4 weeks of BT is embedded in this duration as per the requirement of the establishment)*	**Months: 12 months**
	Remarks	
4.	**Credit**	**TBD**
5.	**NSQF Level** (*Mandatory for NAPS*)	4 **NSQC Approval Date:** 31st March 2022
6.	**Related NSQF aligned qualification details**	

S. No.	QP/ Qualification/ NOS Name (As applicable)	QP/ NOS Code & Version	NQR Code
1.	Rubber Product Finishing Operator	RSC/Q3201_V2	2022/RUB/RSDC/05737

7.	**Brief Job Role Description**	A Rubber Product Finishing Operator is responsible to inspect the final finished product for any defect; hold defective pieces for repair /scrapping; provide final finishing and make them ready for storage in finished goods stores /send for dispatch.
8.	**NCO-2015 Code & Occupation** (*Access the NCO 2015 volumes from: https://labour.gov.in/organizationsofmole/directorate-general-employment-training-dget*)	NCO-2015/8141.0800 Final Finish
9.	**Minimum Eligibility Criteria** *(Educational and/ or Technical Qualification)*	8th Class ITI (2 years) in relevant trade + 2 Years of relevant experience) OR 10th Class (2 years of relevant experience) OR

		Certificate (Level 3- Junior Rubber Technician with 2 years of relevant experience)
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 Rubber Product Finishing Operator.
16.	**Career Progression**	**Vertical progression** Rubber Product Finishing Supervisor (Level 5)
17.	**Trainer's Qualification & Experience:**	ITI/Diploma /Graduate in any engineering stream with 3 years of industry experience The trainer should have relevant experience in domain and knowledge on the particular job role and about the relevant equipment and machinery which is used for the job role.
18.	**Curriculum Creation Date**	07/07/2022
19.	**Curriculum Valid up to Date**	31/03/2025

Module Details

S.No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
1	**Introduction**	• Describe various stages of development of rubber. • Explain current industrial scenario of rubber and its prospects in future. • State the rubber consumption pattern in different sectors. • List the source of different types of rubber. • Describe usage of rubber for making different products. • Recognize major rubber industrial associations and their functions. • Recall the job responsibilities of a Rubber Product Finishing Operator. • Identify the rubber products from the given product samples. • Tell the source of rubber for given rubber raw material samples. • Differentiate between the given rubber compounds samples.	0	0	0	0

S.No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
2	**Undertake finishing of tyres** **RSC/N1509** **Version: 1.0**	• Classify the types of rubber tyres used in industry. • Outline the importance of machine and tools cleaning and maintenance. • List the general operating instructions for tyre finishing process. • List the preparation points for tyre finishing operation. • Describe the safety precautions to be taken during tyre finishing.	50	50	70%	70%

		• Define Do's and Don'ts for tyre finishing. • Explain the trimming machine operating mechanism. • Name the common constituent materials used for a rubber tyre. • List major parts of a rubber tyre. • State the importance of cleaning to maintain quality in a rubber tyre during rubber tyre finishing. • Identify the type of tyre finishing tools from the given set of tools. • Select the tools and equipment required for tyre finishing from the given set of tools for selection. • Demonstrate the process for tyre finishing with safety precautions. • Categorize the types of rubber tyres used in the industry. • List the constituent materials used for a rubber tyre. • Describe major parts of a rubber tyre and their importance in tyre performance. • Explain the process of tyre finishing after curing. • Demonstrate Machine check-up points before starting Trimming machine operation. • Demonstrate unfinished cured tyre availability checking as per production plan. • Demonstrate the process for tyre finishing with safety precautions.				
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	
			Th.	**Pr.**	**Th.**	**Pr.**
3	**Prepare material, tools and machine for finishing** **NOS RSC/N3201** **Version: 1.0**	• List the tools and equipment used for rubber parts finishing process. • Describe the use of identification of material during finishing process. • Outline the importance of correct tool use for rubber parts finishing. • Describe the actions to take in case of any abnormality observed during material, tools and machine preparation for rubber parts finishing. • Explain the set-up process of finishing tools and machines. • List the types of rubber products used for finishing process. • Outline the risk and impact of not following defined procedures/work instructions.	60	40	70%	70%

		• List the records to be maintained during equipment preparation. • Prepare tools and machines ready for rubber product finishing process. • Set parameters of Trimming Machine as per the SOP. • Name the tools and equipment used for rubber parts finishing process. • Outline the importance of material identification during rubber parts finishing process. • Describe the importance of using defined procedures/work instructions during rubber parts finishing process. • Demonstrate process of making Tools and machines ready for finishing process. • Demonstrate parameter setting of Trimming Machine as per SOP. • Demonstrate unfinished Rubber products receiving from stores for finishing. • Demonstrate application of FIFO in Rubber products finishing. • Demonstrate setting up the buffing machine for rubber parts buffing. • Demonstrate the process of buffing wheel change in the buffing machine.				
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	
			Th.	**Pr.**	**Th.**	**Pr.**
4	**Undertake finishing of non-tyre rubber products RSC/N3203 Version: 1.0**	• Outline the importance of material identification during rubber parts movement and storage. • Name the aids used for material identification. • List the material movement equipment used in rubber industry. • Describe the general quality issues occurring during rubber product finishing. • Define the countermeasures to be taken on quality issues related to rubber products finishing. • Explain the process of disposing rubber waste. • Recall the safety precautions to be taken during rubber product finishing activities. • Outline the risk and impact of not following defined procedures/work instructions. • Explain the concept of shelf life for rubber parts. • Demonstrate rubber products de-flashing and trimming.	50	50	70%	70%

		• Check finished rubber products/sample products carefully for any defect. • List the general issues occurring during rubber product finishing. • Describe the countermeasures to be taken on general issues occurring during rubber product finishing. • Identify the material movement equipment used during rubber product finishing. • Demonstrate availability checking of plant specification / SOP / customer specific information. • Inspect the products/sample products carefully for any defect. • Demonstrate the process of marking the defect/problem areas on the product. • Record defect details. • Demonstrate storage of defective parts in a separate area and inform Supervisor for corrective action • Demonstrate rubber products de-flashing and trimming. • Prepare material identification tag for a finished rubber product lot, as per the given details. • Demonstrate sample submission to quality person, • Demonstrate handing over finished product to warehouse. • Demonstrate disposal of rejected Rubber products. • Demonstrate the disposal of the rubber scrap.				
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	
			Th.	**Pr.**	**Th.**	**Pr.**
5	**Carry out housekeeping RSC/N5001 Version: 1.0**	• Describe what is housekeeping. • Explain the importance of housekeeping in rubber product finishing process. • List the cleaning equipment and chemicals used for cleaning process. • Describe what is ‘5S.’ • Define each ‘S’ and its meaning. • List the safety precautions to be taken during housekeeping activities.	40	60	70%	70%

		• Demonstrate the segregation of unwanted material as per 1S principal in the assigned work area. • Name the chemicals and equipment used for cleaning process. • Outline the importance of using 5S for maintaining housekeeping in an industry. • Identify the cleaning equipment from the given set of equipment. • Demonstrate the cleaning process of a given rubber product finishing tools with the specified cleaning aid and chemicals. • Demonstrate the deployment of all 5S principals in the assigned work area.				
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	
			Th.	**Pr.**	**Th.**	**Pr.**
6	**Carry out reporting and documentation RSC/N5002 Version: 1.0**	• Outline the importance of reporting production performance for rubber product finishing. • List the information given in a standard production report for rubber product finishing. • Recall the documents used during rubber product finishing production process. • Describe the purpose of using work instructions for rubber product finishing. • Explain the ways of overcoming general problems encountered in communication at workplace. • Describe the traits of active listening. • List the reports to be prepared during rubber product finishing operations. • Outline the importance of accuracy in filling in the details in the reports prepared for the production output details • List the benefits of using best practices of communication. • Demonstrate the production report filling for a given production data of rubber product finishing on a given format. • Demonstrate the SPC graph filling based on the given data. • Demonstrate the filling up of machine maintenance request slip for given machine maintenance issue.	40	60	70%	70%
S.No		**Outcomes**	**Assessment Marks**			

	Module/NOS Name, Code, Version				Passing Percentage	
			Th.	Pr.	Th.	Pr.
7	**Carry out quality checks RSC/N5003 Version: 1.0**	• Identify the inspection equipment used for carrying out in-process inspection during rubber products finishing. • Describe the process of verification of the calibration status of a testing equipment. • Explain the basic concept of AQL (Acceptable Quality Level) for sample drawing process for product testing. • Identify the defects getting generated during rubber products finishing operation. • Explain the method for checking in-process quality during rubber product finishing process. • List the causes of defects in a rubber product finishing and their probable corrective actions. • Demonstrate the verification of the calibration status of the given testing equipment. • Conduct visual inspection of the given compound samples, against its visual inspection check sheet. • List the defects getting generated during rubber products finishing operation. • Describe the in-process quality parameter to be checked during rubber product finishing process. • Select the inspection equipment for carrying out given in-process quality inspection during rubber product finishing. • Check of the calibration status of the given testing equipment. • Draw sample of the material from the given lot to be tested as per the specified AQL. • Demonstrate labelling/ numbering on the given testing samples as per the given specifications. • Conduct visual inspection of the given compound samples, against its visual inspection check sheet.	35	65	70%	70%
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	

			Th.	Pr.	Th.	Pr.
8	**Carry out problem identification and escalation RSC/N5004 Version: 1.0**	• Describe regular problems encountered during rubber product finishing process, such as: • Machine maintenance issue • Material non-availability • Manpower non-availability • Quality issue in input material • Quality issue in material produced • Recall the root cause analysis methods available to analyse the problem. • List the wrong practices which may lead to quality issue in produced material. • List the wrong practices which may lead to poor production performance. • Explain how to deal with common problems during rubber product finishing operation. • Explain the process of escalating problem during rubber product finishing operation. • Prepare a fish bone diagram for a given rubber product finishing quality problem. • Create a why-why analysis for the given rubber product finishing quality problem. • Illustrate the hierarchy for escalating problem during rubber product finishing process.	45	55	70%	70%
S.No	**Module/NOS Name, Code, Version**	**Outcomes**	**Assessment Marks**		**Passing Percentage**	
			Th.	**Pr.**	**Th.**	**Pr.**

9	**Carry Out Health & Safety** **RSC/N5007** **Version: 1.0**	• Explain the health and safety requirements for rubber product finishing process. • Describe the ill-effects of material used in a rubber industry, on a human's health. • List the commonly used safety arrangements in a rubber industry. • Outline the requirements of Personal Protective Equipment (PPE) during rubber product finishing process. • Name common injuries which can occur while working in a rubber industry. • Recall the constituents of a first aid box used in a rubber industry. • Demonstrate the use of the given Personal Protective Equipment (PPE). • Select the fire extinguisher from the given fire extinguishers, for the specified fire type and class.	30	70	70%	70%
		• Demonstrate first aid procedure for a given injury. • Use the applicable Personal Protective Equipment (PPE) during rubber parts finishing process. • Demonstrate how to handle fire emergencies through a role play. • Use a multi-purpose fire extinguisher on a simulated fire. • Select the fire extinguisher from the given fire extinguishers, for the specified fire type and class. • Role play of the suggested first aid procedure for a given injury.				
Total Marks/Passing Percentage			**350**	**450**	**70%**	**70%**

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.