APPRENTICESHIP CURRICULUM (OPTIONAL TRADE)

Rubber

Junior Rubber_Technician/Technical Assistant

Course Code: CO072200025

☒NAPS ☐Non-NAPS

NSQF Level: 3

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Course Details

1.	**Course Name**	Junior Rubber_Technician/Technical Assistant
2.	**Course Code**	CO072200025
3.	**Apprenticeship Training Duration:** *(2 to 4 weeks of BT is embedded in this duration as per the requirement of the establishment)*	**Months: 12 month**
	Remarks	
4.	**Credit**	**TBD**
5.	**NSQF Level** (*Mandatory for NAPS*)	3 **NSQC Approval Date:** 25th June 2022
6.	**Related NSQF aligned qualification details**	

Sno	QP/ Qualification/ NOS Name (As applicable)	QP/ NOS Code & Version	NQR Code
1	Junior Rubber_Technician/Technical Assistant	RSC/Q0831_V6	2020/RUB /RSDC/03786

7.	**Brief Job Role Description**	The individual is responsible for assisting the operators/supervisors to carry out activities as per the standard operating procedure. He/she is responsible for providing necessary assistance in production process while conforming to the quality, safety and environment requirements.
8.	**NCO-2015 Code & Occupation** (*Access the NCO 2015 volumes from: https://labour.gov.in/organizationsofmole/directorate-general-employment-training-dget*)	NCO2015/4322.0201
9.	**Minimum Eligibility Criteria** *(Educational and/ or Technical Qualification)*	8th Class
10.	**Entry Age for Apprenticeship**	*18 year*
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**	The Apprentices after completion of this course canfind opportunities as Junior Rubber Technician/Technical Assistant
16.	**Career Progression**	Basic knowledge of rubber sector and process involved in rubber manufacturing process. Candidate can further grow to rubber technician
17.	**Trainer's Qualification & Experience:**	Diploma in Rubber / Chemical Engineering with 3 years' Experience of supervisory in rubber Industry Certification-)

		Should be certified trainer for the job role of RSC/Q0831 Minimum Pass marks 80% for Domain Knowledge.
18.	**Curriculum Creation Date**	**07 July 2022**
19.	**Curriculum Valid up to Date**	**25 June 2025**

Module Details

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
1.	**Introduction**	• Describe the various stages of rubber developmental history. • Explain the current industrial scenario of rubber and its prospects in future. • Identify different types of rubber. • Describe usage of rubber for making different products. • Recognise major industrial associations and their functions. • Identify equipment used for rubber different rubber technologies. • Describe the role and responsibilities of a junior rubber technician/ technical assistant.	0	0	0	0
2.	**Assisting in material handling in weighing RSC/N3101_V2.0**	• Describe various material storage methods used in rubber industry: - Plastic bins - Bags - Corrugated Boxes - Drums - Pallets - Racks • Demonstrate the different methods of material storage based on purpose of the storage. • Describe various material handling equipment used in the rubber industry: - Pallet mover - Trolley - Forklift - Crane • Demonstrate the ways to use material handling equipment safely for material movement.	40	60	50%	50%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Describe the various ways of material identification, such as: - Tags - Sticker • Describe the purpose of identification, traceability and maintaining records. • Demonstrate the process of tagging of material for identification purpose. • Describe the ways of sample selection for testing purpose. • Demonstrate the sample selection process. • Describe the purpose and functionality of FIFO (First In First Out) • Demonstrate the raw material picking process for rubber mixing as per FIFO. • Describe various types of weighing scales used for the weighment in rubber industry, such as: - Digital weighing scale - Analogue weighing scale - Mechanical weighing scale - Analytical weighing scale • Perform weighment on the different types of weighing scales as per process requirement. • Describe the raw material used in making rubber compound, such as: - Natural rubber - Synthetic rubber - Fillers - Carbon black - Curing agents - Accelerators - Vulcanizing activators - Antioxidants - Plasticizers - Special additives				

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• Explain the specification sheet of rubber compound for raw material picking. • Identify the raw materials required for picking as per the compound specification sheet. • Describe the working principle of rubber compound making machines, such as: - Banbury mixer - Intermix machine – 2 roller mixing mill				
	Assisting in production RSC/N3102_V2	• List various types of compound used in the rubber parts manufacturing: - EPDM - NBR - SBR - Silicon, etc. • Identify various types of compound used in the rubber parts manufacturing. • Describe various rubber processing technologies, such as: - Rubber compounding - Rubber extrusion - Rubber compression moulding - Rubber injection moulding - Rubber autoclave curing - Rubber fabric dipping - Rubber calendaring - Rubber component finishing • Describe the pre-production activities in rubber manufacturing. • Describe the post-production activities in rubber manufacturing. • Demonstrate the process of machine maintenance.	35	65	50%	50%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
	Assisting in post production process RSC/N3103_V2	• Describe various tests carried out on the finished rubber parts, such as: - Tensile strength - Compression strength - Physical appearance inspection • Describe the steps involved in carrying out the quality tests on the finished rubber parts. • Describe various quality issues found in the finished rubber parts, such as: - Blisters - Chips - Under cure - Over cure - Short moulding - Contamination - Thick flashes • Demonstrate the steps involved in segregation of rubber parts for any quality issue. • Describe various post-production operations being carried out in the rubber manufacturing, such as: - Trimming - Flash removal - Buffing - Packing - Storage • Demonstrate the steps involved in rubber post-production activities. • Describe the process of storing the rubber material as per FIFO principle. • Describe the ways of disposal of the leftover material from the rubber part manufacturing process.	45	55	50%	50%
	Health and safety RSC/N5007_V1	• Identify various hazards in a rubber industry. • Explain the health and safety requirements for a rubber industry. • Discuss requirement of Personal Protective Equipment (PPE) in rubber industry. • Identify different types of Personal Protective Equipment (PPE) used in the rubber industry. • Demonstrate the use of different Personal Protective Equipment (PPE). • Describe various emergency situations in the rubber industry.	30	70	50%	50%

S. No	Module/NOS Name, Code, Version	Outcomes	Assessment Marks		Passing Percentage	
			Th.	Pr.	Th.	Pr.
		• List the common injuries in the rubber industry. • List the constituents of a first-aid box. • Demonstrate how to handle fire emergencies. • Select suitable fire extinguisher as per fire type and class. • Demonstrate how to use a multipurpose fire extinguisher.				
	Total Marks		**150**	**250**		

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	Ozone Tester, Dispersion Checker, Viscosity Meter - For Cements, Iodine Content, Gravity, Tensile Tester, Lab Curing Press, PH Tester, Adhesion Tester -For Fabric Reinforcement, Lab Mill, Mooney Vsicometr, Ash Content, Rebound Tester, Rheometer, Melting Point, Hardness Tester, Oven, Furnace, Mosuture Check, Abrasion Tester	1
2	Mask (Actualquantity may require)	20
3	Gloves	10
4	Safety shoes, goggles, ear plugs, Measuring tools	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.