



## QUALIFICATION FILE

### Chemical Manufacturing Plant Operator

Short Term Training (STT)  Long Term Training (LTT)  Apprenticeship

Upskilling  Dual/Flexi Qualification  For ToT  For ToA

General  Multi-skill (MS)  Cross Sectoral (CS)  Future Skills  OEM

NCrF/NSQF Level: 4

Submitted By:

Rubber, Chemical & Petrochemical Skill Development Council (RCPSDC)

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Section 1: Basic Details

| 1.     | <b>Qualification Name</b>   | Chemical Manufacturing Plant Operator  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
|--------|---|--|--|--------|--|---|---|---|--|---|-----------------|--|---|---|--|---|--|--|---|--|--------------------------------|
| 2.     | <b>Sector/s</b>   | Chemical and Petro-chemical (CPC)  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 3.     | <b>Type of Qualification:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options<br><input type="checkbox"/> OEM | <b>NQR Code &amp; version of existing/previous qualification:</b> (change to previous, once approved): NA  | <b>Qualification Name of existing/previous version:</b> NA |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 4.     | <b>a. OEM Name</b><br><b>b. Qualification Name</b><br>(Wherever applicable)   | Chemical Manufacturing Plant Operator  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 5.     | <b>National Qualification Register (NQR) Code &amp; Version</b><br>(Will be issued after NSQC approval)   | QG-03-RI-00398-2023-V1-RCPSDC  | <b>6. NCrF/NSQF Level:</b> 4                               |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 7.     | <b>Award (Certificate/Diploma/Advance Diploma/ Any Other)</b><br>(Wherever applicable specify multiple entry/exits also & provide details in annexure)                                | Certificate  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 8.     | <b>Brief Description of the Qualification</b>   | The individual at work is responsible for setting up and preparing plant and equipment for production and performing manufacturing operations in a chemical manufacturing plant.   |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 9.     | <b>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</b>  | <b>a. Entry Qualification &amp; Relevant Experience:</b> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Completed 2nd year of 3-year diploma (after 10<sup>th</sup>) and pursuing regular diploma</td> <td></td> </tr> <tr> <td>3</td> <td>12th Grade pass</td> <td></td> </tr> <tr> <td>4</td> <td>10th Grade pass plus 2-year NTC plus 1 year NAC</td> <td></td> </tr> <tr> <td>5</td> <td>8<sup>th</sup> Grade pass plus 2-year NTC plus 1-Year NAC plus CITS</td> <td></td> </tr> <tr> <td>6</td> <td>Certificate NSQF (Level 3-Chemical Plant Assistant Operator/ Assistant Operator Chemical Maintenance Plant) with minimum education as 8<sup>th</sup> grade pass</td> <td>3 years of relevant experience</td> </tr> </tbody> </table> <b>b. Age:</b> 18 years |  | S. No. | Academic/Skill Qualification (with Specialization - if applicable) | Required Experience (with Specialization - if applicable) | 1 | Completed 2nd year of 3-year diploma (after 10 <sup>th</sup> ) and pursuing regular diploma |  | 3 | 12th Grade pass |  | 4 | 10th Grade pass plus 2-year NTC plus 1 year NAC |  | 5 | 8 <sup>th</sup> Grade pass plus 2-year NTC plus 1-Year NAC plus CITS |  | 6 | Certificate NSQF (Level 3-Chemical Plant Assistant Operator/ Assistant Operator Chemical Maintenance Plant) with minimum education as 8 <sup>th</sup> grade pass | 3 years of relevant experience |
| S. No. | Academic/Skill Qualification (with Specialization - if applicable)  | Required Experience (with Specialization - if applicable)  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 1      | Completed 2nd year of 3-year diploma (after 10 <sup>th</sup> ) and pursuing regular diploma   |  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 3      | 12th Grade pass   |  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 4      | 10th Grade pass plus 2-year NTC plus 1 year NAC   |  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 5      | 8 <sup>th</sup> Grade pass plus 2-year NTC plus 1-Year NAC plus CITS  |  |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |
| 6      | Certificate NSQF (Level 3-Chemical Plant Assistant Operator/ Assistant Operator Chemical Maintenance Plant) with minimum education as 8 <sup>th</sup> grade pass                      | 3 years of relevant experience   |  |        |  |   |   |   |  |   |                 |  |   |   |  |   |  |  |   |  |                                |

| 10.                     | <b>Credits Assigned to this Qualification, Subject to Assessment</b> (as per National Credit Framework (NCrF))  | 15   | <b>11. Common Cost Norm Category (I/II/III)</b><br>(wherever applicable): I |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
|-------------------------|---|--|---|-------------------------|---|--|-------------------------|----------------|-------------------|-----------------------|-------------------------|---------------|---------------------|--------|--------|-------|---|--------|--------|--|--|--|--|--|
| 12.                     | <b>Any Licensing requirements for Undertaking Training on This Qualification</b> (wherever applicable)  | NA   |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 13.                     | <b>Training Duration by Modes of Training Delivery</b> (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification) | <input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> Blended<br><table border="1"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practical (Hours)</th> <th>OJT Mandatory (Hours)</th> <th>OJT Recommended (Hours)</th> <th>Total (Hours)</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>180:00</td> <td>240:00</td> <td>30:00</td> <td>-</td> <td>450:00</td> </tr> <tr> <td>Online</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> (Refer Blended Learning Annexure for details) |   |                         |   |  | Training Delivery Modes | Theory (Hours) | Practical (Hours) | OJT Mandatory (Hours) | OJT Recommended (Hours) | Total (Hours) | Classroom (offline) | 180:00 | 240:00 | 30:00 | - | 450:00 | Online |  |  |  |  |  |
| Training Delivery Modes | Theory (Hours)  | Practical (Hours)  | OJT Mandatory (Hours)   | OJT Recommended (Hours) | Total (Hours)                           |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| Classroom (offline)     | 180:00  | 240:00   | 30:00   | -                       | 450:00                                  |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| Online                  |   |  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 14.                     | <b>Aligned to NCO/ISCO Codes</b> (if no code is available mention the same)   | NCO-2015/1321.1000   |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 15.                     | <b>Progression path after attaining the qualification</b> (Please show Professional and Academic progression)   | Manufacturing Plant supervisor, Manufacturing Plant Manager  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 16.                     | <b>Other Indian languages in which the Qualification &amp; Model Curriculum are being submitted</b>   | Hindi  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 17.                     | <b>Is similar Qualification(s) available on NQR-if yes, justification for this qualification</b>  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No URLs of similar Qualifications:  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 18.                     | <b>Is the Job Role Amenable to Persons with Disability</b>  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 19.                     | <b>How Participation of Women will be Encouraged</b>  | No gender sensitization  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 20.                     | <b>Are Greening/ Environment Sustainability Aspects Covered</b> (Specify the NOS/Module which covers it)  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>1. RSC/N5614- Manage Chemical Hazards in the Workplace<br>2. RSC/N5603 – Follow Ethical and Sustainable Practices at Workplace  |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 21.                     | <b>Is Qualification Suitable to be Offered in Schools/Colleges</b>  | Schools <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Colleges <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 22.                     | <b>Name and Contact Details of Submitting / Awarding Body SPOC</b><br>(In case of CS or MS, provide details of both Lead AB & Supporting ABs)                       | <b>Name:</b> Saif Mohammad<br><b>Email:</b> ceo@rcpsdc.in<br><b>Contact No.:</b> 011 41004899<br><b>Website:</b> http://rcpsdc.in/   |   |                         |   |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |
| 23.                     | <b>Final Approval Date by NSQC:</b> 29/03/2023  | <b>24. Validity Duration:</b> 3 Years  |   |                         | <b>25. Next Review Date:</b> 29/03/2026 |  |                         |                |                   |                       |                         |               |                     |        |        |       |   |        |        |  |  |  |  |  |

## Section 2: Module Summary

## NOS/s of Qualifications

*(In exceptional cases these could be described as components)*

## Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

**Th.-Theory Pr.-Practical OJT-On the Job Man.-Mandatory Training Rec.-Recommended Proj.-Project**

| S. No                                    | NOS/Module Name   | NOS/Module Code & Version<br><i>(if applicable)</i> | Core/ Non-Core | NCrF/NSQF Level | Credits as per NCrF | Training Duration (Hours) |            |           |           |            | Assessment Marks |            |          |          |            |                                      |
|--|---|---|----------------|-----------------|---------------------|---------------------------|------------|-----------|-----------|------------|------------------|------------|----------|----------|------------|--------------------------------------|
|  |   |   |                |                 |                     | Th.                       | Pr.        | OJT-Man.  | OJT-Rec.  | Total      | Th.              | Pr.        | Proj.    | Viva     | Total      | Weightage (%) <i>(if applicable)</i> |
| 1.                                       | Perform chemical manufacturing operations                 | RSC/N7401   | Core           | 4               | 7                   | 60                        | 120        | 00        | 00        | 180        | 40               | 60         | 0        | 0        | 100        | 30                                   |
| 2.                                       | Coordinate and Communicate Effectively at the Workplace   | RSC/N5610   | Non-Core       | 4               | 1                   | 20                        | 10         | 00        | 00        | 30         | 40               | 60         | 0        | 0        | 100        | 10                                   |
| 3.                                       | Carry out housekeeping                                    | RSC/N5001   | Non-Core       | 4               | 1                   | 20                        | 10         | 00        | 00        | 30         | 40               | 60         | 0        | 0        | 100        | 10                                   |
| 4.                                       | Carry out reporting and documentation                     | RSC/N5002   | Non - Core     | 4               | 1                   | 20                        | 10         | 00        | 00        | 30         | 40               | 60         | 0        | 0        | 100        | 10                                   |
| 5.                                       | Carry out health and safety                               | RSC/N5007   | Non - Core     | 4               | 1                   | 10                        | 20         | 00        | 00        | 30         | 30               | 70         | 0        | 0        | 100        | 10                                   |
| 6.                                       | Manage chemical hazards in the workplace                  | RSC/N5614   | Non - Core     | 4               | 1                   | 10                        | 20         | 00        | 00        | 30         | 40               | 60         | 0        | 0        | 100        | 10                                   |
| 7.                                       | Follow ethical and sustainable practices at the workplace | RSC/N5603   | Non - Core     | 4               | 1                   | 10                        | 20         | 00        | 00        | 30         | 40               | 60         | 0        | 0        | 100        | 10                                   |
| 8.                                       | Employability Skills (60 Hours)                           | DGT/VSQ/N0102                                       | Non - Core     | 4               | 2                   | 30                        | 30         | 00        | 00        | 60         | 50               | 0          | 0        | 0        | 50         | 10                                   |
| 9.                                       | OJT   |   |                |                 | 1                   | 00                        | 00         | 30        | 00        | 30         | 0                | 0          | 0        | 0        | 0          | 0                                    |
| <b>Duration (in Hours) / Total Marks</b> |   |   |                |                 | <b>18</b>           | <b>180</b>                | <b>240</b> | <b>30</b> | <b>00</b> | <b>450</b> | <b>320</b>       | <b>430</b> | <b>0</b> | <b>0</b> | <b>750</b> | <b>100</b>                           |

**Assessment - Minimum Qualifying Percentage**Please specify **any one** of the following:**Minimum Pass Percentage – Aggregate at qualification level: 70 %** (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)**Minimum Pass Percentage – NOS/Module-wise: 70 %** (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)**Section 3: Training Related**

|    |  |  |
|----|--|--|
| 1. | <b>Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>        | Diploma in any stream of Engineering with 5 industrial experience.   |
| 2. | <b>Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b> | NA   |
| 3. | <b>Tools and Equipment Required for Training</b>   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", details to be provided in Annexure) |
| 4. | <b>In Case of Revised Qualification, Details of Any Upskilling Required for Trainer</b>                          | NA   |

**Section 4: Assessment Related**

|    |   |  |
|----|---|--|
| 1. | <b>Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>                | Diploma in any stream of Engineering with 5 industrial experience.   |
| 2. | <b>Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>                 | NA   |
| 3. | <b>Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b> | NA   |
| 4. | <b>Assessment Mode (Specify the assessment mode)</b>  | Blended(only theory)   |
| 5. | <b>Tools and Equipment Required for Assessment</b>  | <input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No (details to be provided in Annexure-if it is different for Assessment) |

## Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

|    |   |
|----|---|
| 1. | <b>Latest Skill Gap Study (not older than 2 years) (Yes/No):</b> work in progress                             |
| 2. | <b>Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):</b> work in progress |
| 3. | <b>Government /Industry initiatives/ requirement (Yes/No):</b> Yes  |
| 4. | <b>Number of Industry validation provided:</b> 30   |
| 5. | <b>Estimated nos. of persons to be trained and employed:</b> work in progress                                 |
| 6. | <b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> Mail Shared                 |

## Section 6: Annexure &amp; Supporting Documents Check List

Specify Annexure Name / Supporting document file name

|     |   |                 |
|-----|---|-----------------|
| 1.  | <b>Annexure:</b> NCrf/NSQF level justification based on NCrf level/NSQF descriptors ( <i>Mandatory</i> )                      | <i>Attached</i> |
| 2.  | <b>Annexure:</b> List of tools and equipment relevant for qualification ( <i>Mandatory, except in case of online course</i> ) | <i>Attached</i> |
| 3.  | <b>Annexure:</b> Detailed Assessment Criteria ( <i>Mandatory</i> )  | <i>Attached</i> |
| 4.  | <b>Annexure:</b> Assessment Strategy ( <i>Mandatory</i> )   | <i>Attached</i> |
| 5.  | <b>Annexure:</b> Blended Learning ( <i>Mandatory, in case selected Mode of delivery is “Blended Learning”</i> )               | <i>Attached</i> |
| 6.  | <b>Annexure:</b> Multiple Entry-Exit Details ( <i>Mandatory, in case qualification has multiple Entry-Exit</i> )              | <i>Attached</i> |
| 7.  | <b>Annexure:</b> Acronym and Glossary ( <i>Optional</i> )   | <i>Attached</i> |
| 8.  | <b>Supporting Document:</b> Model Curriculum ( <i>Mandatory – Public view</i> )   | <i>Attached</i> |
| 9.  | <b>Supporting Document:</b> Career Progression ( <i>Mandatory - Public view</i> )   | <i>Attached</i> |
| 10. | <b>Supporting Document:</b> Occupational Map ( <i>Mandatory</i> )   | -               |
| 11. | <b>Supporting Document:</b> Assessment SOP ( <i>Mandatory</i> )   | <i>Attached</i> |
| 12. | <b>Any other document you wish to submit:</b>   | -               |

## Annexure: Evidence of Level

| NCrF/NSQF Level Descriptors   | Key requirements of the job role/ outcome of the qualification  | How the job role/ outcomes relate to the NCrF/NSQF level descriptor  | NCrF/NSQF Level |
|-------------------------------|---|--|-----------------|
| <b>Process</b>                | <p><b>Work in familiar, predictable, routine, situation of clear choice.</b></p> <ul style="list-style-type: none"> <li>• Perform chemical manufacturing operations</li> <li>• Coordinate and communicate effectively at the workplace</li> <li>• Carry out housekeeping</li> <li>• Carry out reporting and documentation</li> <li>• Carry out health and safety</li> <li>• Manage chemical hazards in the workplace</li> <li>• Follow ethical and sustainable practices at the workplace</li> <li>• Employability Skills (60 hours)</li> </ul>   | <p>A Chemical Manufacturing Plant Operator should able to perform chemical manufacturing operations, coordinate and communicate effectively at the workplace, carry out housekeeping, reporting and documentation and health and safety, manage chemical hazards in the workplace and follow ethical and sustainable practices at the workplace.</p> <p>Hence Level 4</p>  | 4               |
| <b>Professional knowledge</b> | <p><b>Factual knowledge of field of knowledge or study.</b></p> <ul style="list-style-type: none"> <li>• List different types of raw material, equipment and machinery used for chemical production</li> <li>• Explain the fundamentals of the chemical manufacturing process along with chemical composition, structure and properties of substances</li> <li>• Explain the operating procedure of chemical manufacturing machinery and equipment</li> <li>• Explain the methods to collect samples for quality inspection</li> <li>• Describe the methods to take correct measurement, weightage of chemical ingredients required as per the formulation cards</li> <li>• Explain the different type of records to be maintained and applicable format used for the same</li> <li>• Explain the standard policies on behavioural etiquette, professionalism and gender sensitive service practices at workplace and standard hierarchy and reporting structure</li> </ul> | <p>A Chemical Manufacturing Plant Operator should have factual knowledge of the sector like, different types of raw material, fundamentals of the chemical manufacturing process, operating procedure of chemical manufacturing machinery and equipment, methods to collect samples for quality inspection, methods to take correct measurement, weightage of chemical ingredients etc.</p> <p>Hence Level 4</p> | 4               |

|  |   |  |  |
|--|---|--|--|
|  | <ul style="list-style-type: none"><li>• Discuss effective ways of team coordination</li><li>• List the key helpline numbers</li><li>• State the significance of listening, responding, trusting, supporting and respecting all colleagues and senior</li><li>• Describe what is housekeeping</li><li>• Explain the importance of housekeeping in storage area</li><li>• List the cleaning equipment and chemicals used for cleaning process</li><li>• Identify various safety boards/ signs placed on the shop floor</li><li>• Discuss the importance of adequate ventilation during cleaning work</li><li>• Discuss the importance of monitoring and supervising the cleaning activities</li><li>• Describe what is '5S'</li><li>• Define each 'S' and its meaning</li><li>• Discuss the necessary precautions to avoid any hazard and accident during cleaning activities</li><li>• Discuss the documents and records needed to be maintained and updated related to cleaning activities done</li><li>• Elaborate the standard health, safety and environment guidelines, legislation and regulations and company's HR instructions along with implications of not following the organizational requirement for approval, for undertaking specific tasks etc. and actions to be taken in case of non-conformity to behavioural standards of the organization</li><li>• Elaborate the standard procedure of rectifying and solving any issues/conflicts and importance of attending troubleshooting processes</li><li>• Discuss different methods of recording information</li></ul> |  |  |
|--|---|--|--|

|  |  |  |  |
|--|--|--|--|
|  | <ul style="list-style-type: none"><li>• Explain various types of documents, the procedure tolls and tackle to maintain the same as a part of the job role, importance of completing the report timely accurately and correctly as well as the actions to be taken if the documents are not correct</li><li>• Elaborate the procedures of reporting to the appropriate authority</li><li>• Explain the reporting procedures to follow before disclosing information to any outside party</li><li>• Explain the health and safety requirements in storage facility</li><li>• Discuss organisational procedures for health, safety and security and individual role and responsibilities related to the same</li><li>• Describe the ill-effects of improper storage conditions in storage area</li><li>• List the safety arrangement available in storage area</li><li>• Outline the requirements of Personal Protective Equipment (PPE) during storage operations</li><li>• State details of common injuries which can occur while working in a storage area</li><li>• Recall the constituents of a first aid box used in industry</li><li>• Discuss different types of chemicals hazards and levels of risks</li><li>• Discuss different types of PPE like overalls and aprons, gloves, chemical resistant glasses, respiratory protection, boots etc.</li><li>• Describe the different types of labels, like dangerous to the environment, explosive , toxic , flammable, corrosive etc.</li><li>• Explain the risk assessment procedure and principle of risk control hierarchy</li><li>• Explain the importance of safe chemical storage areas</li></ul> |  |  |
|--|--|--|--|

|                                  |   |   |          |
|----------------------------------|---|---|----------|
|                                  | <ul style="list-style-type: none"> <li>• Discuss organisational policies for usage of alternate energy source, such as solar energy, for the site</li> <li>• Discuss the importance of efficient utilisation of fuels, material, water and energy/ electricity</li> <li>• Explain the processes to optimize usage of fuels, material, water and energy/ electricity</li> <li>• Enlist common practices for conserving electricity at workplace</li> <li>• Discuss the significance of greening</li> <li>• Classify different categories of waste for the purpose of segregation</li> <li>• Differentiate between hazardous, recyclable and non-recyclable waste</li> <li>• Discuss various methods of waste collection and disposal</li> <li>• Discuss the importance of completing tasks on time</li> <li>• Discuss the ways to adjust the communication styles to reflect sensitivity towards gender and persons with disability (PwD)</li> </ul> |   |          |
| <p><b>Professional skill</b></p> | <p><b>Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts.</b></p> <ul style="list-style-type: none"> <li>• Write log sheets, forms, information, and details communicated by senior</li> <li>• Note down instructions received from the seniors</li> <li>• Read and interpret written instructions</li> <li>• Read job requirements from the job specification document</li> </ul>  | <p>A Chemical Manufacturing Plant Operator has to be responsible for setting up and preparing plant and equipment for production and performing manufacturing operations in a chemical manufacturing plant by applying professional skills at workplace as per the organizational service standards. This person recalls and demonstrate practical skill and perform routine and repetitive work in a narrow range of application by using appropriate rule and tools using a quality concept.</p> <p>Hence Level 4</p> | <p>4</p> |

|                       |  |  |   |
|-----------------------|--|--|---|
| <b>Core skill</b>     | <p><b>Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment..</b></p> <ul style="list-style-type: none"> <li>• Read job requirements from the job specification document</li> <li>• Interact and communicate with senior or other organizational personnel as per requirement</li> <li>• Apply problem-solving approach prior to resolve difficulties</li> </ul>   | <p>A Chemical Manufacturing Plant Operator should apply core skills such as communicating in written or oral language, with required clarity, problem-solving approach, basic understanding of social, political and natural environment.</p> <p>Hence Level 4</p> | 4 |
| <b>Responsibility</b> | <p><b>Responsibility for own work and learning.</b></p> <ul style="list-style-type: none"> <li>• Prepare for chemical production</li> <li>• Perform chemical manufacturing operations</li> <li>• Communicate effectively with colleagues and seniors</li> <li>• Coordinate with cross-functional teams</li> <li>• Prepare for housekeeping practices</li> <li>• Carry out housekeeping operations</li> <li>• Perform post housekeeping activities</li> <li>• Maintain records and documents</li> <li>• Provide reports and information</li> <li>• Maintain safe and efficient workplace</li> <li>• Follow appropriate emergency procedures</li> <li>• Comply with standard safety procedures</li> <li>• Participate in safety awareness campaigns</li> <li>• Follow safety measures while handling chemicals</li> <li>• Adopt resource conservation practices</li> <li>• Follow effective waste management practices</li> <li>• Display behavioural Skills at workplace</li> <li>• Adopt workplace practices and policies respecting gender and ability differences</li> </ul> | <p>A Chemical Manufacturing Plant Operator is responsible for preparing for chemical production and performing manufacturing operations. This person take responsibility for own work and learning.</p> <p>Hence Level 4</p>                                       | 4 |

## Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment  
Batch Size: 30

| S. No. | Tool / Equipment Name  | Specification | Quantity for specified Batch size |
|--------|--|---------------|-----------------------------------|
| 1      | Production schedule  |               | 01                                |
| 2      | Raw material   |               | 01                                |
| 3      | Tools and equipment  |               | As required                       |
| 4      | Mixers   |               | As required                       |
| 5      | Kettles  |               | As required                       |
| 6      | Blenders   |               | As required                       |
| 7      | Dryers   |               | As required                       |
| 8      | Tableting  |               | As required                       |
| 9      | Encapsulation  |               | As required                       |
| 10     | Granulation and coating machines   |               | As required                       |
| 11     | Different types of documents used to record operating data   |               | As required                       |
| 12     | Defective raw material   |               | As required                       |
| 13     | Defective components   |               | As required                       |
| 14     | Escalation matrix  |               | 01                                |
| 15     | Organisation structure   |               | 01                                |
| 16     | Cleaning rags  |               | 01                                |
| 17     | Cleaning brush   |               | 01                                |
| 18     | Broom  |               | 01                                |
| 19     | Mop  |               | 01                                |
| 20     | Cleaning chemicals   |               | 01                                |
| 21     | Floor cleaning machine   |               | 01                                |
| 22     | Personal Protective Equipment (PPE) - safety helmet, safety goggle, safety shoes, safety gloves, mask, earmuff, first aid box, fire extinguisher, eye-wash station, overalls and aprons, chemical resistant glasses, respiratory protection, boots, etc. |               | 30 sets                           |
| 23     | Breakage report  |               | 01                                |
| 24     | Damage report  |               | 01                                |
| 25     | Reporting/ Required form and format  |               | 01                                |
| 26     | Safety data sheet  |               | 01                                |
| 27     | Report format  |               | 01                                |

**Classroom Aids**

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Flip Chart
3. Duster
4. Projector

5. Projector screen
6. Computer/ Laptop with charger
7. Power Point Presentation
8. 2.1 Laptop External Speakers
9. Training kit (Trainer guide, Presentations)
10. Participant Handbook and Related Standard Operating Procedures
11. Markers
12. Chalk

## Annexure: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

| S. No | Organization Name                            | Representative Name   | Designation                               | Contact Address | Contact Phone No | E-mail ID                     | LinkedIn Profile (if available) |
|-------|--|-----------------------|---|-----------------|------------------|-------------------------------|---------------------------------|
| 1     | Indian Peroxide Ltd.                         | Mr. Sachin Tyagi      | Assistant Manager (Maintenance & Utility) | -               | 9098048284       | sachin@indianperoxide.com     | -                               |
| 2     | Jayshree Aeromatics Pvt Ltd.                 | Mr. Hiren Patel       | Director                                  | -               | 9727711325       | hiren@jayshreeind.com         | -                               |
| 3     | K.A Malle Pharma Company Ltd.                | Mr. Deepak Dubey      | Factory Manager                           | -               | 7211191914       | deepak@kamalle.com            | -                               |
| 4     | Malviya Chemicals & Pharmaceuticals Pvt Ltd. | Mr. A.K Verma         | Plant Incharge                            | -               | 9891151995       | malpharma@gmail.com           | -                               |
| 5     | Meridian Chem Bond Pvt Ltd.                  | Mr. Mayur Patel       | Electrical Engineer                       | -               | 9913602464       | project@meridianchembond.in   | -                               |
| 6     | Norris Ltd.                                  | Mr. Rutul Davawala    | GM-Quality                                | -               | 9925234151       | rutuldavawala@yahoo.com       | -                               |
| 7     | Panama Petrochem Ltd                         | Mr. P.V Nikam         | Vice President - Technical                | -               | 9824114608       | nikam@panamapetro.com         | -                               |
| 8     | Ramdev Chemical Industries                   | Mr. Bhavin Bhalani    | Manager - Purchase                        | -               | 8460430112       | conference@ramdevpigments.com | -                               |
| 9     | Shyam Chemicals Private Limited              | Mr. Akshay Anand      | Officer                                   | -               | 9033015841       | hr@shyamchemicals.com         | -                               |
| 10    | Vihita Chem Private Limited                  | Mr. Rajesh Patni      | General Manager - Operations              | -               | 9909945372       | rajesh.patni@vihita.com       | -                               |
| 11    | Beauty Art Print India Pvt Ltd.              | Mr. Lal Vihari Maurya | Maintenance Manager                       | -               | 9318449936       | lalviharimaurya71@gmail.com   | -                               |

|    |  |                              |                    |   |                         |                                |   |
|----|--|------------------------------|--------------------|---|-------------------------|--------------------------------|---|
| 12 | Chemico Chemicals Pvt Ltd.                   | Mr. Jagdish Dimri            | Manager            | - | 9910412055              | Chemical@chemicochemicals.com  | - |
| 13 | Chirag Chemicals                             | Mr. Chirag Chhabra           | Owner              | - | 7838200210              | chirag.chhabra23@gmail.com     | - |
| 14 | Narayan Organics Pvt Ltd.                    | Mr. Tejas Rajyaguru          | Admin              | - | 9427691305              | tejas.guru009@gmail.com        | - |
| 15 | Perfect Chemicals                            | Mr. Vithelbhai Padariya      | Partner            | - | 9487818400              | perfectchemicals2014@gmail.com | - |
| 16 | Suleshvari                                   | Mr. Kamlesh Laxmichand Patel | CEO                | - | 8037528808              | suleshvaripharma@yahoo.co.in   | - |
| 17 | Aagam Life Sciences Pvt Ltd.                 | Mr. Piyush Sjitra            | Director           | - | 8866468464              | aagamlifescience@gmail.com     | - |
| 18 | Axiom Chemicals Pvt Ltd.                     | Mr. Amit Parikh              | Director           | - | 8047016134 / 8048956817 | sales@axiomchemicals.com       | - |
| 19 | Chandan Chemicals                            | Mr. Dharmesh Tamakuwala      | Senior Officer     | - | 9586270444              | euraminedaxesh2011@gmail.com   | - |
| 20 | Deep Pharmchem Pvt Ltd.                      | Mr. G.S Phalak               | Supervisor         | - | 9429035944              | info@deeppharm.com             | - |
| 21 | Macson Products                              | Mr. Sagar Patel              | Production Manager | - | 8735082582              | unit2@macsonproducts.com       | - |
| 22 | Mayur Colour & Chemicals                     | Mr. Arpit Saualia            | Owner              | - | 8048361271              | mayurdyem98251@gmail.com       | - |
| 23 | Mittal Dyes & Chemicals                      | Mr. Deepak Gupta             | Plant Manager      | - | 9210764767              | mittal.dyes@gmail.com          | - |
| 24 | Pragna Chemical Industries                   | Mr. Mahesh Patel             | Partner            | - | 9824125040              | info@pragnagroup.com           | - |
| 25 | Sayan Greenochem Pvt Ltd.                    | Mr. Dharmendra               | Plant Incharge     | - | 7984464919              | dh210@gmail.com                | - |
| 26 | Shree Ambe Colour Chem                       | Mr. Lav Patel                | Owner              | - | 9687250299              | shreeambecolourchem@yahoo.com  | - |
| 27 | Shree Vardayini Chemical Industries Pvt Ltd. | Mr. Jignesh Pandya           | Clerk/Admin        | - | 7359332555              | info@vardayini.com             | - |
| 28 | Sodar Industries                             | Mr. D.M Patel                | Owner              | - | 9824451381              | dahyabhaipatel@sanchar.net.in  | - |
| 29 | SPA VET - MIN (P) Ltd                        | Mr. Salim Sherani            | Director           | - | 9904072402              | suhel7@gmail.com               | - |
| 30 | Umiya Chem Intermediates                     | Mr. Vinod Patel              | Partner            | - | 9824148130              | umiyachem_amk@yahoo.com        | - |

## Annexure: Training &amp; Employment Details

## Training and Employment Projections: Work in process

| Year    | Total Candidates     |                                    | Women                |                                    | People with Disability |                                    |
|---------|----------------------|------------------------------------|----------------------|------------------------------------|------------------------|------------------------------------|
|         | Estimated Training # | Estimated Employment Opportunities | Estimated Training # | Estimated Employment Opportunities | Estimated Training #   | Estimated Employment Opportunities |
| 2023-24 | 300                  | 70%                                | 60                   | 70%                                |                        |                                    |
| 2024-25 | 500                  | 70%                                | 100                  | 70%                                |                        |                                    |
| 2025-26 | 1000                 | 70%                                | 200                  | 70%                                |                        |                                    |

Annexure: Blended Learning

## Blended Learning Estimated Ratio &amp; Recommended Tools:

Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training &amp; Skilling” available on:

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

| S. No. | Select the Components of the Qualification   | List Recommended Tools – for all Selected Components   | Offline : Online Ratio |
|--------|--|--|------------------------|
| 1      | <input checked="" type="checkbox"/> Theory/ Lectures - Imparting theoretical and conceptual knowledge                    | <ul style="list-style-type: none"> <li>• Books/ e-books</li> <li>• Presentations</li> <li>• Reference Material</li> <li>• Audio / Video Modules</li> </ul>   |                        |
| 2      | <input checked="" type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners | <ul style="list-style-type: none"> <li>• Self-Learning Videos</li> <li>• Broadcasts</li> <li>• Mobile Learning</li> <li>• Curated Digital content</li> </ul> |                        |
| 3      | <input checked="" type="checkbox"/> Showing Practical Demonstrations to the learners                                     | <ul style="list-style-type: none"> <li>• Video Content</li> <li>• E-Resource library</li> <li>• AR/ VR/ XR</li> </ul>  |                        |
| 4      | <input checked="" type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training         | <ul style="list-style-type: none"> <li>• Training tools (tools list attached)</li> <li>• Video Play</li> <li>• Presentations</li> </ul>                      |                        |
| 5      | <input checked="" type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice  | <ul style="list-style-type: none"> <li>• Online Question Bank</li> <li>• Mobile Quick test app</li> <li>• MCQ based tests</li> </ul>                         |                        |
| 6      | <input checked="" type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations                           | <ul style="list-style-type: none"> <li>• Assessment engine for Essays</li> <li>• Up-loadable file examinations</li> <li>• Mock test sessions</li> </ul>      |                        |
| 7      | <input checked="" type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training          | <ul style="list-style-type: none"> <li>• Online tests</li> <li>• Offline assessments</li> </ul>  |                        |

## Annexure: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

| NOS/Module Name   | Assessment Criteria for Performance Criteria/Learning Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|--------------|-----------------|---------------|------------|
| <b>RSC/N7401: Perform chemical manufacturing operations</b>   | <i>Prepare for chemical production</i>  | <b>18</b>    | <b>27</b>       | <b>0</b>      | <b>0</b>   |
|   | PC1. obtain and interpret the production schedule from the supervisor   | 2            | 3               | 0             | 0          |
|   | PC2. identify raw material, equipment, and machine requirements as per the production plan and chemical formula   | 2            | 4               | 0             | 0          |
|   | PC3. ensure availability of appropriate chemicals and other raw material  | 2            | 4               | 0             | 0          |
|   | PC4. inspect the equipment and machinery for proper functioning   | 3            | 4               | 0             | 0          |
|   | PC5. repair or replace the damaged equipment, if required   | 3            | 4               | 0             | 0          |
|   | PC6. ensure the equipment, machinery and work area are clean at all times   | 3            | 4               | 0             | 0          |
|   | PC7. start pumps to wash and rinse reactor vessels, to exhaust gases and vapors, to regulate the flow of oil, steam, air, and perfume to towers, and to add products to converter or blending vessels             | 3            | 4               | 0             | 0          |
|   | <i>Perform chemical manufacturing operations</i>  | <b>22</b>    | <b>33</b>       | <b>0</b>      | <b>0</b>   |
|   | PC8. start the machines and set the parameters  | 2            | 3               | 0             | 0          |
|   | PC9. monitor reaction processes and transfer of products in conformance with safety procedures  | 2            | 3               | 0             | 0          |
|   | PC10. monitor meters, gauges, and electronic instrumentation on one or more chemical or formulation units, such as mixers, kettles, blenders, dryers, tableting, encapsulation, granulation, and coating machines | 2            | 3               | 0             | 0          |
|   | PC11. measure, weigh and load chemical ingredients as per the formulation cards   | 2            | 3               | 0             | 0          |
|   | PC12. control and operate chemical processes or systems of machines, using panel boards, control boards, or semi-automatic equipment  | 2            | 3               | 0             | 0          |
|   | PC13. adjust control settings to make necessary adjustments on equipment units affecting speeds of chemical reactions, quality, or yields   | 2            | 3               | 0             | 0          |
|   | PC14. draw samples and perform routine chemical and physical tests of chemicals   | 2            | 3               | 0             | 0          |
|   | PC15. interpret chemical reactions visible through sight glasses or on television monitors, and review laboratory test reports for process adjustment   | 2            | 3               | 0             | 0          |
|   | PC16. record operating data, such as process conditions, test results, or instrument readings   | 2            | 3               | 0             | 0          |
|   | PC17. adjust the machine parameters, if required  | 2            | 3               | 0             | 0          |
| PC18. notify maintenance, stationary engineering, and other auxiliary personnel to correct equipment malfunctions and to adjust power, steam, water, or air supplies, if required | 2   | 3            | 0               | 0             |            |
|   | <b>Total Marks</b>  | <b>40</b>    | <b>60</b>       | <b>-</b>      | <b>-</b>   |
| <b>RSC/N5610: Coordinate and communicate</b>  | <i>Communicate effectively with colleagues and seniors</i>  | <b>28</b>    | <b>44</b>       | <b>0</b>      | <b>0</b>   |
|   | PC1. interact with colleagues and senior in a polite and professional manner  | 2            | 4               | 0             | 0          |

|  |   |           |           |          |          |
|--|---|-----------|-----------|----------|----------|
| <b>effectively at the workplace</b>  | PC2. listen actively to the issues or requirements of colleagues and respond timely   | 2         | 4         | 0        | 0        |
|  | PC3. exhibit trust, support and respect to all colleagues and seniors   | 2         | 4         | 0        | 0        |
|  | PC4. pass on essential information to the colleagues timely   | 2         | 4         | 0        | 0        |
|  | PC5. maintain clarity, honesty and transparency while communicating with the seniors and colleagues   | 2         | 4         | 0        | 0        |
|  | PC6. coordinate with seniors on work-related and behavioral feedback  | 3         | 4         | 0        | 0        |
|  | PC7. comply with organization's policies and procedures for team work   | 3         | 4         | 0        | 0        |
|  | PC8. seek clarification on the information provided by seniors, if needed   | 3         | 4         | 0        | 0        |
|  | PC9. respect the personal and professional space of colleagues and superiors  | 3         | 4         | 0        | 0        |
|  | PC10. report status of work as per the schedule to seniors and inform about any deviations or anomalies   | 3         | 4         | 0        | 0        |
|  | PC11. provide information in the desired format and frequency   | 3         | 4         | 0        | 0        |
|  | <i>Coordinate with cross-functional teams</i>   | <b>12</b> | <b>16</b> | <b>0</b> | <b>0</b> |
|  | PC12. support colleagues of other departments for smooth work process, as required  | 3         | 4         | 0        | 0        |
|  | PC13. coordinate with maintenance /engineering team for preventive and corrective maintenance, break down and calibration errors                  | 3         | 4         | 0        | 0        |
|  | PC14. provide inputs to the concerned stakeholders in periodic fence line review to detect non-compliance   | 3         | 4         | 0        | 0        |
|  | PC15. coordinate with health and safety team for incident or authorized personnel, accident and emergency, if any                                 | 3         | 4         | 0        | 0        |
| <b>Total Marks</b>   | <b>40</b>   | <b>60</b> | <b>0</b>  | <b>0</b> |          |
| <b>RSC/N5001: Carry out housekeeping</b>   | <i>Prepare for housekeeping activities</i>  | <b>22</b> | <b>31</b> | <b>0</b> | <b>0</b> |
|  | PC1. inspect the area/s to identify the different types of surfaces that require cleaning   | 2         | 4         | 0        | 0        |
|  | PC2. determine the material requirements for cleaning the areas inspected considering risk, time, efficiency and type of stain                    | 4         | 4         | 0        | 0        |
|  | PC3. ensure that cleaning equipment is in proper working condition  | 2         | 4         | 0        | 0        |
|  | PC4. ensure that the suitable alternatives are selected for cleaning the areas, in case the appropriate equipment and materials are not available | 3         | 4         | 0        | 0        |
|  | PC5. ensure that the correct sequence/steps are followed for cleaning the area to avoid re-soiling clean areas and surfaces                       | 4         | 5         | 0        | 0        |
|  | PC6. ensure the usage of appropriate signage to inform about the cleaning activity being carried out  | 2         | 3         | 0        | 0        |
|  | PC7. ensure adequate ventilation for the work being carried out   | 2         | 3         | 0        | 0        |
|  | PC8. wear personal protective equipment suitable for the cleaning method and cleaning materials being used  | 3         | 4         | 0        | 0        |
|  | <i>Carry out housekeeping operations</i>  | <b>9</b>  | <b>13</b> | <b>0</b> | <b>0</b> |
|  | PC9. ensure that the cleaning activity is carried out as per SOP  | 3         | 4         | 0        | 0        |
| PC10. manage accidental damage, as per the workplace procedure, caused while carrying out the work | 2   | 3         | 0         | 0        |          |

|   |  |           |           |          |          |
|---|--|-----------|-----------|----------|----------|
|   | PC11. report to the appropriate person regarding difficulties in carrying out the work   | 2         | 3         | 0        | 0        |
|   | PC12. identify and report to the appropriate person if any additional cleaning required that is outside one's responsibility or skill                      | 2         | 3         | 0        | 0        |
|   | <i>Perform post housekeeping activities</i>  | <b>9</b>  | <b>16</b> | <b>0</b> | <b>0</b> |
|   | PC13. ensure that housekeeping equipment and supplies are stored and maintained as per company standards   | 2         | 3         | 0        | 0        |
|   | PC14. ensure that, on completion of the work, the area is left clean and dry as per the requirements   | 2         | 4         | 0        | 0        |
|   | PC15. ensure that the equipment, materials and personal protective equipment that were used, are returned to their respective places in appropriate manner | 2         | 4         | 0        | 0        |
|   | PC16. ensure appropriate disposal of the waste garnered from the cleaning activity   | 1         | 3         | 0        | 0        |
|   | PC17. ensure that all necessary supplies or consumables are replenished as per the requirement   | 2         | 2         | 0        | 0        |
|   | <b>Total Marks</b>   | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
| <b>RSC/N5002: Carry out reporting and documentation</b> | <i>Maintain records and documents</i>  | <b>21</b> | <b>31</b> | <b>0</b> | <b>0</b> |
|   | PC1. identify documentation to be completed as applicable to one's role  | 5         | 6         | 0        | 0        |
|   | PC2. record details accurately in an appropriate format  | 6         | 10        |          |          |
|   | PC3. complete all documentation within stipulated time as per standard operating procedure (SOP)   | 6         | 10        |          |          |
|   | PC4. ensure documents are available for all the appropriate authorities for inspection   | 4         | 5         | 0        | 0        |
|   | <i>Provide reports and information</i>   | <b>19</b> | <b>29</b> | <b>0</b> | <b>0</b> |
|   | PC5. report data/problems/incidents, as applicable, to the appropriate authority in a timely manner  | 5         | 9         | 0        | 0        |
|   | PC6. follow respective reporting procedures as prescribed by the company's SOP   | 5         | 8         | 0        | 0        |
|   | PC7. respond to requests for information in an appropriate manner as per organizational procedures   | 5         | 8         | 0        | 0        |
|   | PC8. inform the appropriate authority regarding the requests for information received  | 4         | 4         | 0        | 0        |
|   | <b>Total Marks</b>   | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
| <b>RSC/N5007: Carry out health and safety</b>           | <i>Maintain safe and efficient workplace</i>   | <b>9</b>  | <b>32</b> | <b>0</b> | <b>0</b> |
|   | PC1. perform basic safety checks before operation of all machinery and equipment   | 1         | 4         | 0        | 0        |
|   | PC2. report hazards identified during safety checks to the appropriate supervisor  | 1         | 4         | 0        | 0        |

|  |   |           |           |          |          |
|--|---|-----------|-----------|----------|----------|
|  | PC3. use appropriate protective clothing/equipment/safety gear to carry out the related duties in accordance with the workplace policy                | 1         | 3         | 0        | 0        |
|  | PC4. assess the risk prior to performing the jobs which involve manual handling   | 1         | 4         | 0        | 0        |
|  | PC5. carry out work according to the recommended safe practices while ensuring minimum environmental damage   | 1         | 4         | 0        | 0        |
|  | PC6. return the equipment and materials to the designated storage after every use   | 1         | 4         | 0        | 0        |
|  | PC7. dispose off the waste safely as per the procedure in the designated area   | 1         | 3         | 0        | 0        |
|  | PC8. plan and implement actions to reduce the risk to bystanders  | 1         | 3         | 0        | 0        |
|  | PC9. monitor all the procedures and work instructions for controlling the risk  | 1         | 3         | 0        | 0        |
|  | <i>Follow appropriate emergency procedures</i>  | <b>12</b> | <b>22</b> | <b>0</b> | <b>0</b> |
|  | PC10. report accidents, incidents or problems, if any, without delay to an appropriate person   | 2         | 4         | 0        | 0        |
|  | PC11. perform immediate necessary action as required to reduce the damage   | 2         | 4         | 0        | 0        |
|  | PC12. follow procedures for dealing with accidents, fires and emergencies as per the company standards and workplace requirements                     | 2         | 4         | 0        | 0        |
|  | PC13. operate emergency equipment in accordance with manufacturers' specifications and workplace requirements   | 2         | 3         | 0        | 0        |
|  | PC14. provide appropriate treatment to the patient's injuries in accordance with approved first aid techniques  | 1         | 2         | 0        | 0        |
|  | PC15. clean, inspect/ test, refurbish, replace and store the first aid equipment as appropriate   | 2         | 3         | 0        | 0        |
|  | PC16. report details of first aid administered in accordance with the workplace procedures  | 1         | 2         | 0        | 0        |
|  | <i>Comply with standard safety procedures</i>   | <b>5</b>  | <b>12</b> | <b>0</b> | <b>0</b> |
|  | PC17. comply with standard safety procedures while handling heavy/hazardous material, chemicals, machine, equipment, or sharp tool to avoid accidents | 1         | 3         | 0        | 0        |
|  | PC18. perform preventive actions to protect from leakages, water logging, pests, fire, pollution, etc.  | 2         | 3         | 0        | 0        |
|  | PC19. ensure zero accidents, damages, or breach of company safety procedure   | 1         | 3         | 0        | 0        |
|  | PC20. maintain the workplace organized, clean and hazard free   | 1         | 3         | 0        | 0        |
|  | <i>Participate in safety awareness campaigns</i>  | <b>4</b>  | <b>4</b>  | <b>0</b> | <b>0</b> |
|  | PC21. participate in the fire drills and other safety related workshops organized at the workplace  | 2         | 2         | 0        | 0        |
|  | PC22. create awareness about first aid, evacuation  | 2         | 2         | 0        | 0        |
|  | <b>Total Marks</b>  | <b>30</b> | <b>70</b> | <b>0</b> | <b>0</b> |
| <b>RSC/N5614: Manage chemical hazards in the workplace</b> | <i>Follow safety measures while handling chemicals</i>  | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
|  | PC1. identify the hazards and risks associated with chemicals with the help of safety data sheet  | 4         | 5         | 0        | 0        |
|  | PC2. use appropriate Personal Protective Equipment (PPE) as per work requirements   | 4         | 5         | 0        | 0        |

|   |  |           |           |          |          |
|---|--|-----------|-----------|----------|----------|
|   | PC3. recognise the labels on the chemical containers   | 4         | 5         | 0        | 0        |
|   | PC4. carryout risk assessment and work according to the recommended safe practices   | 4         | 5         | 0        | 0        |
|   | PC5. follow hierarchical control measures to mitigate risks  | 3         | 5         | 0        | 0        |
|   | PC6. follow guidelines to handle chemicals   | 3         | 5         | 0        | 0        |
|   | PC7. ensure workplace has well-ventilated and safe chemical storage areas with safety cabinets suited to each substance                          | 3         | 5         | 0        | 0        |
|   | PC8. isolate hazardous substances in separate storage areas  | 3         | 5         | 0        | 0        |
|   | PC9. follow guidelines to collect, segregate and dispose chemicals waste into appropriate containers based on their toxicity or hazardous nature | 3         | 5         | 0        | 0        |
|   | PC10. follow organisational guidelines to protect self and others from chemical hazards  | 3         | 5         | 0        | 0        |
|   | PC11. follow safe evacuation and emergency procedure in the event of chemical accidents/emergencies  | 3         | 5         | 0        | 0        |
|   | PC12. identify and report any chemical hazards, risks or breaches in site safety to the appropriate authority                                    | 3         | 5         | 0        | 0        |
|   | <b>Total Marks</b>   | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
| <b>RSC/N5603: Follow ethical and sustainable practices at the workplace</b> | <i>Adopt resource conservation practices (Greening)</i>  | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
|   | PC1. follow organizational policies for usage of alternate energy source, such as solar energy, for the site                                     | 3         | 3         | 0        | 0        |
|   | PC2. ensure proper usage of fuels (such as diesel) to minimise pollution and conserve energy   | 2         | 6         | 0        | 0        |
|   | PC3. use resources in a responsible manner   | 2         | 6         | 0        | 0        |
|   | PC4. ensure zero wastage of water and follow water conservation practices at the workplace   | 2         | 5         | 0        | 0        |
|   | PC5. carry out processes to prevent soil erosion during plantation and other related activities  | 2         | 6         | 0        | 0        |
|   | <i>Follow effective waste management practices</i>   | <b>13</b> | <b>17</b> | <b>0</b> | <b>0</b> |
|   | PC13. identify and segregate different types of waste such as recyclable, non-recyclable, and hazardous waste generated                          | 3         | 4         | 0        | 0        |
|   | PC14. store waste into different types of bins/containers or appropriate areas based on their categorisation                                     | 3         | 4         | 0        | 0        |
|   | PC15. undertake disposal of non-recyclable waste appropriately as per the prescribed procedure   | 3         | 4         | 0        | 0        |
|   | PC16. organise storage of recyclable and reusable material at identified location  | 2         | 3         | 0        | 0        |
|   | PC17. ensure proper disposal of hazardous waste as per specified processes   | 2         | 2         | 0        | 0        |
|   | <i>Display behavioural Skills at workplace</i>   | <b>5</b>  | <b>3</b>  | <b>0</b> | <b>0</b> |
|   | PC18. ensure timely execution of the assigned tasks.   | 4         | 0         | 0        | 0        |
|   | PC19. exhibit proper etiquette and emotional behaviour at workplace and among team members   | 1         | 3         | 0        | 0        |
|   | <i>Adopt workplace practices and policies respecting gender and ability differences</i>  | <b>11</b> | <b>14</b> | <b>0</b> | <b>0</b> |

|  |  |           |           |          |          |
|--|--|-----------|-----------|----------|----------|
|  | PC20. follow appropriate non verbal communications taking gender and disability of the person into consideration   | 4         | 5         | 0        | 0        |
|  | PC21. communicate in a polite and appropriate manner irrespective of the ability and gender of the person  | 3         | 5         | 0        | 0        |
|  | PC22. ensure to provide work assistance/support to PwD team members and coordinate with them if needed or requested  | 4         | 4         | 0        | 0        |
|  | <b>Total Marks</b>   | <b>40</b> | <b>60</b> | <b>0</b> | <b>0</b> |
| <b>DGT/VSQ/N0102 -<br/>Employability Skills (60<br/>hours)</b>   | <i>Introduction to Employability Skills</i>  | <b>1</b>  | <b>1</b>  | <b>0</b> | <b>0</b> |
|  | PC1. identify employability skills required for jobs in various industries   | 0         | 0         | 0        | 0        |
|  | PC2. identify and explore learning and employability portals   | 0         | 0         | 0        | 0        |
|  | <i>Constitutional values – Citizenship</i>   | <b>1</b>  | <b>1</b>  | <b>0</b> | <b>0</b> |
|  | PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.  | 0         | 0         | 0        | 0        |
|  | PC4. follow environmentally sustainable practices  | 0         | 0         | 0        | 0        |
|  | <i>Becoming a Professional in the 21st Century</i>   | <b>2</b>  | <b>4</b>  | <b>0</b> | <b>0</b> |
|  | PC5. recognize the significance of 21st Century Skills for employment  | 0         | 0         | 0        | 0        |
|  | PC6. practice the 21st Century Skills such as Self- Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life | 0         | 0         | 0        | 0        |
|  | <i>Basic English Skills</i>  | <b>2</b>  | <b>3</b>  | <b>0</b> | <b>0</b> |
|  | PC7. use basic English for everyday conversation in different contexts, in person and over the telephone   | 0         | 0         | 0        | 0        |
|  | PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English  | 0         | 0         | 0        | 0        |
|  | PC9. write short messages, notes, letters, e-mails etc. in English   | 0         | 0         | 0        | 0        |
|  | <i>Career Development &amp; Goal Setting</i>   | <b>1</b>  | <b>2</b>  | <b>0</b> | <b>0</b> |
|  | PC10. understand the difference between job and career   | 0         | 0         | 0        | 0        |
|  | PC11. prepare a career development plan with short- and long-term goals, based on aptitude   | 0         | 0         | 0        | 0        |
|  | <i>Communication Skills</i>  | <b>1</b>  | <b>1</b>  | <b>0</b> | <b>0</b> |
| PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings | 0  | 0         | 0         | 0        |          |
| PC13. work collaboratively with others in a team   | 0  | 0         | 0         | 0        |          |
| <i>Diversity &amp; Inclusion</i>   | <b>1</b>   | <b>2</b>  | <b>0</b>  | <b>0</b> |          |
| PC14. communicate and behave appropriately with all genders and PwD  | 0  | 0         | 0         | 0        |          |
| PC15. escalate any issues related to sexual harassment at workplace according to POSH Act                      | 0  | 0         | 0         | 0        |          |
| <i>Financial and Legal Literacy</i>  | <b>2</b>   | <b>3</b>  | <b>0</b>  | <b>0</b> |          |
| PC16. select financial institutions, products and services as per requirement                                  | 0  | 0         | 0         | 0        |          |
| PC17. carry out offline and online financial transactions, safely and securely                                 | 0  | 0         | 0         | 0        |          |

|   |            |            |          |          |
|---|------------|------------|----------|----------|
| PC18. identify common components of salary and compute income, expenses, taxes, investments etc   | 0          | 0          | 0        | 0        |
| PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation  | 0          | 0          | 0        | 0        |
| <i>Essential Digital Skills</i>   | <b>3</b>   | <b>4</b>   | <b>0</b> | <b>0</b> |
| PC20. operate digital devices and carry out basic internet operations securely and safely   | 0          | 0          | 0        | 0        |
| PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively  | 0          | 0          | 0        | 0        |
| PC22. use basic features of word processor, spreadsheets, and presentations   | 0          | 0          | 0        | 0        |
| <i>Entrepreneurship</i>   | <b>2</b>   | <b>3</b>   | <b>0</b> | <b>0</b> |
| PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research                                       | 0          | 0          | 0        | 0        |
| PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion  | 0          | 0          | 0        | 0        |
| PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity   | 0          | 0          | 0        | 0        |
| <i>Customer Service</i>   | <b>1</b>   | <b>2</b>   | <b>0</b> | <b>0</b> |
| PC26. identify different types of customers   | 0          | 0          | 0        | 0        |
| PC27. identify and respond to customer requests and needs in a professional manner.   | 0          | 0          | 0        | 0        |
| PC28. follow appropriate hygiene and grooming standards   | 0          | 0          | 0        | 0        |
| <i>Getting ready for apprenticeship &amp; Jobs</i>  | <b>2</b>   | <b>3</b>   | <b>0</b> | <b>0</b> |
| PC29. create a professional Curriculum vitae (Résumé)   | 0          | 0          | 0        | 0        |
| PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively | 0          | 0          | 0        | 0        |
| PC31. apply to identified job openings using offline/online methods as per requirement  | 0          | 0          | 0        | 0        |
| PC32. answer questions politely, with clarity and confidence, during recruitment and selection  | 0          | 0          | 0        | 0        |
| PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements  | 0          | 0          | 0        | 0        |
| <b>Total Marks</b>  | <b>20</b>  | <b>30</b>  | <b>0</b> | <b>0</b> |
| <b>Grand Total</b>  | <b>320</b> | <b>430</b> | <b>0</b> | <b>0</b> |

#### Annexure: Assessment Strategy

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

*Mention the detailed assessment strategy in the provided template.*

##### 1. Assessment System Overview:

Chemical Manufacturing Plant Operator

- Batches assigned to the assessment agencies for conducting the assessment on SDMS/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

2. Testing Environment:

- 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.
- If the batch size is more than 30, then there should be 2 Assessors.
- 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.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. 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

5. Method of verification or validation:

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

6. 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
- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

**On the Job:**

1. Each module (which covers the job profile of Assistant Technician – Smart Meter will be assessed separately.

2. The candidate must score 50% in each module to successfully complete the OJT.
3. Tools of Assessment that will be used for assessing whether the candidate is having desired skills and etiquette of dealing with customers, understanding needs & requirements, assessing the customer and perform Soft Skills effectively:
  - Videos of Trainees during OJT
  - Answer Sheets of Question Banks
  - Assessing the Log Book entries of Trainees at Employer location
  - Employer Performance Feedback.
4. Assessment of each Module will ensure that the candidate is able to:
  - Perform preparatory activities such as selection and inspection of tools and equipment etc.
  - Perform installation and testing of energy meter.
  - Perform installation and testing of water meter.
  - Perform installation and testing of gas meter.
  - Comply with the health and safety practices followed in the organisation.

#### Annexure: Acronym and Glossary

##### Acronym

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

| Term   | Description  |
|--|--|
| <b>National Occupational Standards (NOS)</b> | NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.   |
| <b>Qualification</b>                         | A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards   |
| <b>Qualification File</b>                    | A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification. |
| <b>Sector</b>                                | A grouping of professional activities on the basis of their main economic function, product, service or technology.  |
| <b>Long Term Training</b>                    | Long-term skilling means any vocational training program undertaken for a year and above.<br><a href="https://ncvet.gov.in/sites/default/files/NCVET.pdf">https://ncvet.gov.in/sites/default/files/NCVET.pdf</a>                       |