

QUALIFICATION FILE

Sr. Technician RACW* *Refrigeration Air Conditioning & Washing Machine

- ☒ 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: 5

Submitted By:

Electronics Sector Skills Council of India (ESSCI)

155, 2nd Floor, ESC House

Okhla Industrial Area - Phase 3,

New Delhi – 110020

Tel: 011 – 8447738501

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Section 1: Basic Details

1.	Qualification Name	Sr. Technician RACW* *Refrigeration Air Conditioning & Washing Machine													
2.	Sector/s	Electronics													
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: <i>(change to previous, once approved)</i> - 2022/EHW/ESSC/05112 & V3.0	Qualification Name of existing/previous version: Field Engineer - RACW												
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>	NA													
5.	National Qualification Register (NQR) Code & Version <i>(Will be issued after NSQC approval)</i>	QG-05-EH-03970-2025-V4-ESSCI	6. NCrF/NSQF Level: 5												
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other) <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	Certificate													
8.	Brief Description of the Qualification	The individual interacts with customers to install the appliance, diagnose the problem to assess possible causes of malfunction, rectifies minor problems, and replaces faulty modules for failed parts or recommends factory repairs for bigger faults.													
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <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>UG Diploma in the relevant field (Physics/ Electronics/ Electrical/Mechanical)</td> <td>1.5 years of relevant experience required.</td> </tr> <tr> <td>2</td> <td>3 Years Diploma after 10th (Electronics/ Electrical/ Mechanical)</td> <td>3 years of relevant experience.</td> </tr> <tr> <td>3</td> <td>Previous relevant qualification of NSQF level 4.5</td> <td>1.5 years of relevant experience.</td> </tr> </tbody> </table> # Relevant experience in Consumer Electronics & IT Hardware.		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	UG Diploma in the relevant field (Physics/ Electronics/ Electrical/Mechanical)	1.5 years of relevant experience required.	2	3 Years Diploma after 10 th (Electronics/ Electrical/ Mechanical)	3 years of relevant experience.	3	Previous relevant qualification of NSQF level 4.5	1.5 years of relevant experience.
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)													
1	UG Diploma in the relevant field (Physics/ Electronics/ Electrical/Mechanical)	1.5 years of relevant experience required.													
2	3 Years Diploma after 10 th (Electronics/ Electrical/ Mechanical)	3 years of relevant experience.													
3	Previous relevant qualification of NSQF level 4.5	1.5 years of relevant experience.													
		b. Age: NA													
10.	Credits Assigned to this Qualification, Subject to Assessment <i>(as per National Credit Framework (NCrF))</i>	21	11. Common Cost Norm Category (I/II/III) (wherever applicable): I												

<Ratified in 43rd NSQC Meeting & Dated: 08/05/2025>

12. Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	NA																					
13. Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☐ Offline ☐ Online ☒ Blended <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>00:00</td> <td>270:00</td> <td>180:00</td> <td>00:00</td> <td rowspan="2">630:00</td> </tr> <tr> <td>Online</td> <td>180:00</td> <td>00:00</td> <td>00:00</td> <td>00:00</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)	00:00	270:00	180:00	00:00	630:00	Online	180:00	00:00	00:00	00:00
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																	
Classroom (offline)	00:00	270:00	180:00	00:00	630:00																	
Online	180:00	00:00	00:00	00:00																		
14. Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/7241.1001																					
15. Progression path after attaining the qualification (Please show Professional and Academic progression)	Assistant Manager – HVAC																					
16. Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi																					
17. Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:																					
18. Is the Job Role Amenable to Persons with Disability	☐ Yes ☒ No If "Yes", specify applicable type of Disability:																					
19. How Participation of Women will be Encouraged	No gender sensitization																					
20. Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☒ Yes ☐ No Employability Skills (DGT/VSQ/N0102)																					
21. Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☐ Yes ☒ No Colleges ☒ Yes ☐ No																					
22. Name and Contact Details of Submitting / Awarding Body SPOC (In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Name: Saleem Ahmed Email: ceo@essc-india.org Contact No.: 011 – 8447738501 Website: https://www.essc-india.org/																					
23. Final Approval Date by NSQC: 07.05.2025	24. Validity Duration: 3 Years			25. Next Review Date: 30.04.2028																		

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 to the 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 (if applicable)	Core/ Non-Core	NCrF/NSQ F Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT - Man.	OJT - Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1	Engage with customer for service	ELE/N3101 & V3.0	Core	5	3	36	24	30	0	90	40	50	-	10	100	20
2	Perform installation and repair of refrigerator	ELE/N3112 & V4.0	Core	5	6	60	60	60	0	180	40	50	-	10	100	20
3	Perform installation and repair of air conditioners	ELE/N3114 & V3.0	Core	5	5.5	30	75	60	0	165	40	50	-	10	100	20
4	Perform installation and repair of washing machine	ELE/N3116 & V3.0	Core	5	4.5	30	75	30	0	135	40	50	-	10	100	20
5	Employability Skills (60 hours)	DGT/VSQ/N0102 & V1.0	Non-core	4	2	24	36	0	0	60	20	30	-	-	50	20
Duration (in Hours) / Total Marks					21	180	270	180	0	630	180	230		40	450	100

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Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	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 (%) (if applicable)
1.																
2.																
Duration (in Hours) / Total Marks																

Optional NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	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 (%) (if applicable)
1.																
2.																
Duration (in Hours) / Total Marks																

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: % (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.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI (Electrical/ Mechanical/ Electronics) with 2 years industrial and 1 year training experience in the field of RACW. Or
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		Certified in relevant CITS Trade
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI (Electrical/ Mechanical/ Electronics) with 3 years industrial and 1 years training experience in the field of RACW. Or Certified in relevant CITS Trade
3.	Tools and Equipment Required for Training	☒ Yes ☐ No (If "Yes", details to be provided in Annexure)
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	NA

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI (Electrical/ Mechanical/ Electronics) with 3 years industrial and 1 years assessment experience in the field of RACW. Or Certified in relevant CITS Trade
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI (Electrical/ Mechanical/ Electronics) with 4 years industrial and 1 years assessment experience in the field of RACW. Or Certified in relevant CITS Trade
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma/ITI (Electrical/ Mechanical/ Electronics) with 4 years industrial and 1 years assessment experience in the field of RACW. Or Certified in relevant CITS Trade
4.	Assessment Mode (Specify the assessment mode)	Blended
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ 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.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government /Industry initiatives/ requirement (Yes/No): Yes
4.	Number of Industry validation provided: 21
5.	Estimated nos. of persons to be trained and employed: 10000
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: Yes If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

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

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
Professional Theoretical Knowledge/Process	Interact with customers effectively to install appliances at premises and provide after sales repair services.	Theoretical & Practical skill required for assisting in installing/repairing/servicing appliances or performing the task individually. Since the individual is required to take instructions from supervisors, hence this is level 5.	5
Professional and Technical Skills/ Expertise/ Professional Knowledge	Knowledge related to appliance installation, diagnosing faults, assessing possible causes and repairing them in a scheduled manner	Factual and theoretical knowledge in the field of installing /repairing/servicing of appliances. No deeper knowledge or skills are required for this individual; hence this is level 5.	5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	Punctuality, amenable behaviour, patience, trustworthiness, integrity and critical thinking	Range of cognitive and practical skills required for the installing /repairing/servicing of appliances. Hence this is level 5.	5
Broad Learning Outcomes/Core Skill	Effective skill in writing, reading and oral communication (listening and speaking skills) with required clarity	Skill to communicate written or oral with required clarity, but not to manage/supervise others. Hence this is level 5.	5
Responsibility	Responsible for completing the assigned task, effective team working, safety of self and in workplace	Accountable for own work and learning in the domain of installing /repairing/servicing of television and hence this is level 5.	5

Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specifications	Quantity for specified Batch size
1	Adhesive	Nos	5
2	Automatic Washing Machine	No	1
3	Brazing Rod	Nos	2
4	Clamp Meter	Nos	5
5	Digital Thermometer	Nos	2
6	Digital Multimeter	Nos	3
7	Double Door Refrigerator	No	1
8	Electrical Drill	Nos	2
9	Flaring Tool	Nos	2

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10	Gas Cylinder	Nos	2
11	Hack Saw	Nos	5
12	Hammer	Nos	5
13	Line Tester	Nos	10
14	Plier	Nos	5
15	Pressure Gauge	Nos	5
16	Screw Driver Set	Nos	5
17	Semi-Automatic Washing Machine	No	1
18	Single Door Refrigerator	Nos	1
19	Spanner Set	Nos	5
20	Split Air Conditioner	Nos	2
21	Tube Bender	Nos	5
22	Tube Cutter	Nos	5
23	Vacuum Pump	Nos	2
24	Weighing Scale	No	1
25	Window Air Conditioner	Nos	2

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Projector
3. Computer/Laptop
4. Chairs
5. Tables
6. Whiteboard marker

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	Nagdeo Education Welfare Society	Vijay Nagdeo	General Manager	Ward No. 11 Junnardeo Dist. Chhindwara M.P. 480551	9425461093	Vijaynagdeo02@gmail.com	
2	Access Edutech Pvt. Ltd.	Sanjay Kumar Mishra	Director	96, Vrindavan Nagar Ayodhya Bypass Road Bhopal	7000650224	sanjaymishra@accesse-dutech.com	

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3	SHIV SHAKTI TECKNIKI EVAM SAMANAYA SHIKSHAN SANSTHAN	Jitendra Kumar Garg	President	B 32 MAHESH NAGAR JAIPUR RAJASTHAN-302015	9782912782	jitendra.garg303@gmai l.com	
4	YADUVANSHI PRIVATE ITI	YADVENDRA	PRINCIPAL	TC229199 - YADUVANSHI PVT ITI, HASAMPUR The- NEEMKATHANA DIST-SIKAR RAJASTHAN PIN CODE NO - 332718	8432882688	yaduvanshicollege2008 @gmail.com	
5	Balaji Private ITI	Rakesh Kumar	PRINCIPAL	Moonpur Mundawar Alwar Rajasthan	9829745313	rakeshiti@gamil.com	
6	EdgeFX Technologies Pvt. Ltd	Tarun Agarwal	COO	105, Liberty Plaza, Himayatnagar Hedrabad Telangana 500029		info@edgefxkits.in	
7	Sri Venkateswara College of Engineering	Dr C Chandrasekhar	Head R &D & Professor in ECE	Karakmbadi Road,Tirupati 517507	9177217190	dr.chandrasekhar.c@sv colleges.edu.in	
8	GS TECHNO Innovations Pvt. Ltd.	Prakash Sharma	CEO	D-15/1, Ground Floor, Gurgaon		ceogstechno@gmail.co m	
9	Rastriya Khushali Sansthan	Ramkaran Sinsinwar	President	VOP Tajsar Fatehpur Rajasthan	6350658040	Rkstajsar1998@gmail.c om	
10	ApexIIT (OPC) Private Limited	Amit	Director	461, Phase V, Udyog Vihar Gurgaon 122016 Haryana India	9784868951	info@apex.com	
11	Nexgen Exhibitions Pvt. Ltd.	Saurabh Purwar	Director	1201/1206 Pragati Tower, 26 Rajendra Place, New Delhi- 110008, India	9457306691	fbvidgo@gmail.com	
12	Manav Shiksha			Vill+Post – OIE, Dis. Mathura	7500000637		

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13	Annur Industrial Training Institute	Shridevikr	Director		9489675146	skill@gmail.com	
14	Involute Automation Pvt. Ltd	Vijaya Chandra	Operationa In Charge	Plot No. 12 Tecgnocrats Industrial Estate Balanaga, Hyderabad, Telangna 500037 india		Vijaya.chandra@involu tetraining.in	
15	Jnana Ganga Vidya Pith	Jagdish Parsad Yadav	Manager		9448467800	jagdishprasadyadav@gmail.com	
16	Johnson Control India	Dr. Ashish	Sr. Manager		9923200958	Ashishkardam958@gmail.com	
17	Apex Institute	Anil Sharma	Proprietor		7737589125	Apexisd97@gmail.com	
18	Varujh Infotech Pvt. Ltd	Gaurav Prakash	M.D.	Kanpur Uttar Pradesh	8886634504	Skill.akyone@gmail.com	
19	Vedh Narayan Singh Sheva Sansthan	Manoj Kumar	Director	Dholpur Rajasthan	9216692269	Msharmadhholpur1@gmail.com	
20	Vedham Academy Madurai	Sundar Rajan	Admin	Tamilnadu	9787551862		
21	Yuvashakti Foundation(YSF)	Motiram Pawar	Director		9922426404	ysfskills@gmail.com	

Annexure: Training Details

Training and Employment Projections:

Year	Total Candidates	Women	People with Disability
	Estimated Training # Total	Estimated Training # Women	Estimated Training # PwD
2025-26	2500	NA	NA
2026-27	2500	NA	NA
2027-28	5000	NA	NA

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualifica tion Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assesse d	Certifie d	Placed	Trained	Assessed	Certifie d	Placed	Trained	Assessed	Certified	Placed
3.0	2022-23	2330	1928	1649	NA	NA	NA	NA	NA	NA	NA	NA	NA
3.0	2023-24	991	771	684	NA	NA	NA	NA	NA	NA	NA	NA	NA
3.0	2024-25	2448	2342	2183	NA	NA	NA	NA	NA	NA	NA	NA	NA

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

1.

Content availability for previous versions of qualifications:

☒ Participant Handbook ☒ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Languages in which Content is available:

1. English

Blended Learning Estimated Ratio & Recommended Tools:**Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & 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	☒ Theory/ Lectures - Imparting theoretical and conceptual knowledge	• Books/ e-books • Presentations • Reference Material • Audio / Video Modules	30:70
2	☒ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	• Self-Learning Videos • Broadcasts • Mobile Learning • Curated Digital content	30:70
3	☒ Showing Practical Demonstrations to the learners	• Video Content • E-Resource library • AR/ VR/ XR	30:70
4	☒ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	• Training tools (tools list attached) • Video Play • Presentations	30:70
5	☒ Tutorials/ Assignments/ Drill/ Practice	• Online Question Bank • Mobile Quick test app • MCQ based tests	30:70
6	☒ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	• Assessment engine for Essays • Up-loadable file examinations • Mock test sessions	30:70
7	☒ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	• Online tests • Offline assessments	30:70

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
ELE/N3101 – Engage with customer for service	<i>Interact with the customer</i>	32	41		8
	PC1: Evaluate customer complaints registered through customer care or installation schedules to identify the root cause.	4	6		1
	PC2: Contact the customer to confirm the issue via phone and schedule an appropriate time for a service visit.	4	6		1
	PC3: Prepare for the service visit by assembling the necessary tools, parts, manuals, and reference documents.	4	6		1
	PC4: Visit the customer's premises as per the agreed schedule and address the service requirements promptly.	4	6		1
	PC5: Verify the appliance's warranty status and any existing annual maintenance contract details.	5	6		1
	PC6: Collect comprehensive information regarding the appliance's age, maintenance history, symptoms, and previous issues.	5	6		2
	PC7: Clearly explain the warranty coverage, identified issues, and recommended precautions to the customer to prevent recurrence.	3	5		1
	<i>Suggest possible solutions</i>	8	9	-	2

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	PC8: Provide the customer with feasible solutions, including an estimate of time, cost, and the steps involved in servicing.	4	5		1
	PC9: Obtain the customer's consent before proceeding with the proposed course of action.	4	4		1
	Total Marks	40	50	-	10
ELE/N3112 – Perform installation and repair of refrigerator	<i>Prepare for installation of refrigerator</i>	12	12	-	1
	PC1: Regularly identify work requirements and instructions from supervisors to ensure task readiness.	1	1		1
	PC2: Arrive at the customer's location as per the scheduled appointment time.	1	1		
	PC3: Guide the customer on pre-installation requirements, including the appropriate platform, plug point, and positioning for the appliance.	1	1		
	PC4: Unpack the appliance delivered to the customer's location with care.	1	1		
	PC5: Confirm that the product matches the customer's order specifications, including color, model, and accompanying accessories.	2	2		
	PC6: Verify the availability of all necessary tools and components required for the installation.	2	2		
	PC7: Clear and dispose of packaging material in compliance with the company's waste management policies.	2	2		

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	PC8: Collaborate with the customer to determine the optimal placement of the appliance, ensuring proximity to a plug point, an obstruction-free area, and adherence to distance guidelines from walls and floors.	2	2		
	<i>Install refrigerator at customer location</i>	5	5	-	1
	PC9: Assemble components such as the water-disposal beaker, handles, shelves, baskets, and side buckets as per the installation guide.	1	1		1
	PC10: Connect the refrigerator to the power supply and adjust cooling/freezer temperature settings based on seasonal requirements to demonstrate functionality.	1	1		
	PC11: Educate the customer about operational precautions, including safe usage practices and the heating of external refrigerator walls.	2	2		
	PC12: Provide clear instructions on routine maintenance procedures to ensure optimal performance of the refrigerator.	1	1		
	<i>Diagnose, repair and replace the dysfunctional module of refrigerator</i>	11	16		6
	PC13: Check and verify thermostat settings to ensure they are functioning as required.	1	1		1
	PC14: Diagnose the issue based on customer feedback, usage patterns, and an initial inspection of the appliance.	1	1		1
	PC15: Safely unplug the appliance before conducting further inspection.	1	2		1

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PC16: Perform basic diagnostic tests such as power supply checks, volt-ampere testing, and earth connection inspections.	1	1		1
PC17: Conduct individual inspections of all refrigerator modules (e.g., compressor, motor, PCB, condenser) to identify faults if basic tests do not reveal the issue.	1	1		1
PC18: Send the appliance to the factory for detailed diagnostics if the issue cannot be resolved on-site.	1	1		1
PC19: Repair or replace faulty components at the customer's location if the issue is due to damaged parts.	1	1		
PC20: Schedule a follow-up visit if the required part is unavailable for immediate replacement.	1	1		
PC21: Reassemble the appliance and verify that all modules are functioning as per specifications.	1	1		
PC22: Demonstrate the appliance's functionality to the customer post-repair.	1	1		
PC23: Advise the customer on cleaning procedures and preventive measures to avoid recurring issues.	1	2		
PC24: Offer related products or services, such as new equipment or annual maintenance contracts (AMC), to the customer.		2		
<i>Complete documentation</i>	5	7	-	0
PC25: Complete the customer acknowledgment form and obtain their signature for both installation and repair services.	1	2		

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	PC26: Record the completed work in the company ERP system for tracking and notify customer care and supervisors about job completion.	1	2		
	PC27: Ensure all complaint closure documentation is accurately completed.	1	2		
	PC28: Collect payments from the customer, if applicable, and provide a detailed invoice.	2	1		
	<i>Coordinate with others w.r.t. installation and repair</i>	7	10		2
	PC29: Escalate unresolved customer issues or queries beyond the field service scope to appropriate channels for resolution.	2	3		1
	PC30: Collaborate with service technicians to address field challenges and share insights.	2	3		1
	PC31: Train junior technicians on installation, diagnostic, and customer handling procedures to enhance team efficiency.	3	4		
	Total Marks	40	50	-	10
ELE/N3114 – Perform installation and repair of air conditioners	<i>Perform pre-installation checks</i>	10	7	-	1
	PC1: Assess work requirements by consulting with the supervisor to ensure clarity and preparedness.	2	1		1
	PC2: Plan a visit to the customer's premises to determine the suitable installation position for the air conditioner (e.g., window, split, high, low).	2	2		

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PC3: Verify that the installation site complies with structural requirements, such as adequate distance from the power supply and minimal interference from frequently opened windows or doors.	2	2		
PC4: Notify the customer about any necessary pre-installation tasks, including masonry or electrical work, that need to be completed.	2	1		
PC5: Mark the placement positions for indoor and outdoor units and confirm these with the customer for final approval during the next visit.	2	1		
<i>Install the air conditioner</i>	10	17		3
PC6: Carefully unpack the air conditioner, ensuring no damage, and verify that the product matches the customer's order specifications, including color and make.	1	2		1
PC7: Confirm that all required accessories are included in the package.	1	2		1
PC8: Ensure that all tools and fitments needed for the installation are available and in good condition.	1	2		1
PC9: Dispose of packaging material responsibly, adhering to the company's waste disposal policies.	1	1		
PC10: Accurately measure the installation site and drill holes, ensuring no internal wiring or structural damage occurs.	1	2		
PC11: Securely mount the indoor unit and ensure that screws are properly fastened.	1	2		

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PC12: Position the outdoor unit in a suitable location and firmly attach it to the wall or floor.	1	2		
PC13: Connect the indoor and outdoor units using appropriately sized copper pipes and interconnecting cables.	1	1		
PC14: Add additional refrigerant gas if the distance between the indoor and outdoor units exceeds the recommended limit.	1	1		
PC15: Align the air conditioner according to the installation manual and establish all necessary power supply connections.	1	1		
PC16: Demonstrate the air conditioner's features and functionality to the customer, while explaining safety precautions and operational guidelines.		1		
<i>Analyze symptoms, identify and rectify faults</i>	14	21	-	6
PC17: Gather insights on the air conditioner's usage patterns from the customer to assist in diagnosing issues.	2	2		1
PC18: Identify faults through customer interaction and initial inspections, using basic diagnostic tests like power supply and volt-ampere checks.	2	2		1
PC19: Inspect each module of the unit individually if basic tests do not reveal the fault.	1	2		1
PC20: Arrange to send the air conditioner to the factory for detailed diagnostics if on-site troubleshooting is unsuccessful.	1	2		1

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PC21: Repair or replace defective parts at the customer's location, or promptly send specialized components (e.g., PCB) to the service center if immediate repairs are not feasible.	2	2		1
PC22: Schedule a follow-up visit to replace faulty modules or parts after obtaining them from the service center.	2	3		1
PC23: Perform brazing operations at the customer's premises or escalate the issue to a brazing specialist if the fault involves a gas leak.	2	3		
PC24: Reassemble the unit after resolving the identified issues.	1	3		
PC25: Verify that all modules are functioning according to specifications and demonstrate the unit's proper functionality to the customer.	1	2		
<i>Documentation and Communication</i>	6	5		
PC26: Collect payment from the customer based on the rate sheet or communication from customer care and provide a receipt.	1	1		
PC27: Complete the customer acknowledgment form and obtain their signature for documentation purposes.	1	1		
PC28: Record installation or repair details in the company ERP software for future tracking and references.	2	1		
PC29: Notify customer care and supervisors about the completion of the job for proper follow-up and record maintenance.	2	2		
Total Marks	40	50	-	10
<i>Prepare for installation of washing machine</i>	11	11	-	1

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ELE/N3116 – Perform installation and repair of washing machine	PC1: Determine work requirements by consulting with the superior.	2	2		1
	PC2: Visit the customer's location as per the scheduled appointment.	2	2		
	PC3: Advise the customer on pre-installation requirements, including structural support, plug point, drainage, and plumbing, as per the appliance guidelines.	1	1		
	PC4: Remove the packaging from the washing machine delivered at the customer's location.	1	1		
	PC5: Verify that the washing machine matches the customer's order in terms of color, model, and accessories.	1	1		
	PC6: Ensure the availability of all tools and fitments required for the installation process.	1	1		
	PC7: Dispose of packaging material waste responsibly, following the company's waste disposal norms.	1	1		
	PC8: Consult with the customer to determine the optimal placement of the washing machine near a plug point, in an obstruction-free area, while maintaining the required distance from the water tank.	1	1		
	PC9: Position the washing machine on a suitable platform or surface as specified in the installation manual.	1	1		
	<i>Install washing machine at customer location</i>	10	8		2
	PC10: Remove transport pins or any foreign objects inside the washing machine drum before starting the machine.	1	1		1

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PC11: Inspect the plumbing setup to ensure proper water inlet and outlet connections.	1	1		1
PC12: Connect the washing machine's drain hose to the sewage pipe to enable effective drainage.	1	1		
PC13: Identify the water inlet valve in the household plumbing system.	1	1		
PC14: Turn off the water inlet valve before attaching the washing machine's PVC hose to it.	1	1		
PC15: Connect the wastewater outlet of the washing machine to the household waste system to prevent backflow of dirty water.	1	1		
PC16: Securely connect the water inlet, outlet, and power supply using appropriate tools and equipment.	1	1		
PC17: Test the washing machine to ensure there are no leaks and that the unit is stable and functioning properly.	1	1		
PC18: Educate the customer on turning off the washing machine during voltage fluctuations and the potential need for a voltage regulator.	1			
PC19: Provide guidance to the customer on proper usage and maintenance of the washing machine.	1			
<i>Diagnose, repair and replace the faulty module of appliance</i>	9	14		5
PC20: Identify faults through customer interaction, analysis of usage patterns, and initial inspections.	1	2		1
PC21: Unplug the washing machine to conduct a thorough inspection.	1	2		1

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PC22: Perform basic diagnostic tests, including power supply inspection, volt-ampere tests, and earth tests.	1	1		1
PC23: Inspect each module of the washing machine individually if the fault is not detected through basic tests.	1	1		1
PC24: Arrange for the washing machine to be sent to the factory for in-depth diagnosis if the fault cannot be identified on-site.	1	1		1
PC25: Repair or replace damaged components at the customer's location if feasible.	1	1		
PC26: Schedule a follow-up visit if the required part cannot be replaced during the current visit.	1	2		
PC27: Reassemble the washing machine and ensure all modules function as per specifications.	1	1		
PC28: Demonstrate the proper functionality of the washing machine to the customer after completing repairs.	1	1		
PC29: Advise the customer on cleaning and maintenance procedures to prevent future issues.		2		
<i>Complete documentation</i>	4	7		0
PC30: Complete the customer acknowledgment form and obtain the customer's signature for both installation and repair services.	1	1		
PC31: Record the completed work in the company ERP system and update customer care and the supervisor on the job status.	1	2		

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	PC32: Finalize all documentation related to complaint resolution and closure.	1	2		
	PC33: Collect payments from the customer as per the invoice and issue the receipt accordingly.	1	2		
	<i>Coordinate with others w.r.t. installation and repair</i>	6	10		2
	PC34: Escalate unresolved customer issues or queries related to non-field service areas to the appropriate team.	2	3		1
	PC35: Collaborate with service technicians to understand recurring field challenges and share insights.	2	3		1
	PC36: Train junior technicians on installation procedures, fault diagnosis, and effective customer handling techniques.	2	4		
	Total Marks	40	50	-	10
DGT/VSQ/N0102 - Employability Skills (60 hours)	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. identify employability skills required for jobs in various industries				
	PC2. identify and explore learning and employability portals				
	<i>Constitutional values – Citizenship</i>	1	1	-	-
	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.				
	PC4. follow environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	2	4	-	-

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	PC5. recognize the significance of 21st Century Skills for employment				
	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				
	<i>Basic English Skills</i>	2	3	-	-
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone				
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English				
	PC9. write short messages, notes, letters, e-mails etc. in English				
	<i>Career Development & Goal Setting</i>	1	2	-	-
	PC10. understand the difference between job and career				
	PC11. prepare a career development plan with short- and long-term goals, based on aptitude				
	<i>Communication Skills</i>	2	2	-	-
	PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings				
	PC13. work collaboratively with others in a team	-	-	-	-
	<i>Diversity & Inclusion</i>	1	2	-	-
	PC14. communicate and behave appropriately with all genders and PwD				

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	PC15. escalate any issues related to sexual harassment at workplace according to POSH Act				
	<i>Financial and Legal Literacy</i>	2	3	-	-
	PC16. select financial institutions, products and services as per requirement				
	PC17. carry out offline and online financial transactions, safely and securely				
	PC18. identify common components of salary and compute income, expenses, taxes, investments etc				
	PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation				
	<i>Essential Digital Skills</i>	3	4	-	-
	PC20. operate digital devices and carry out basic internet operations securely and safely				
	PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively				
	PC22. use basic features of word processor, spreadsheets, and presentations				
	<i>Entrepreneurship</i>	2	3	-	-
	PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research				
	PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion				

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	PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity				
	<i>Customer Service</i>	1	2	-	-
	PC26. identify different types of customers	-	-	-	-
	PC27. identify and respond to customer requests and needs in a professional manner.				
	PC28. follow appropriate hygiene and grooming standards				
	<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
	PC29. create a professional Curriculum vitae (Résumé)				
	PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively				
	PC31. apply to identified job openings using offline /online methods as per requirement				
	PC32. answer questions politely, with clarity and confidence, during recruitment and selection				
	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements				
	Total Marks	20	30	-	-
Grand Total		180	230	-	40

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:
 - 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

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- 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:

Each module (which covers the job profile of Sr. Technician RACW* *Refrigeration Air Conditioning & Washing Machine) will be assessed separately.

1. The candidate must score 50% in each module to successfully complete the OJT.
2. 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 performing 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.
3. Assessment of each Module will ensure that the candidate is able to:
 - Understand the theoretical concept of RACW
 - Understand practical aspect of inspection, installation and repair
 - Perform operating and diagnosing the equipment
 - Work effectively at the workplace

Annexure: Acronym and Glossary**Acronym**

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training

Glossary

Term	Description
National Occupational Standards (NOS)	NOS defines 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.
Qualification	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
Qualification File	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.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf