

QUALIFICATION FILE

Capital Equipment Instrumentation Technician

☒ 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:

Capital Goods and Strategic Skill Council

39, 1st Floor, Samyak Tower, Pusa Road, New Delhi-110005

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Section 1: Basic Details

1.	Qualification Name	Capital Equipment Instrumentation Technician														
2.	Sector/s	Capital Goods and Manufacturing														
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/CCM/CGSC/06609		Qualification Name of existing/previous version: Technician Instrumentation												
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>															
5.	National Qualification Register (NQR) Code &Version <i>(Will be issued after NSQC approval)</i>	QG-04-CG-03946-2025-V2-CGSSC V4.0	6. NCrF/NSQF Level: 4													
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	A Technician Instrumentation is responsible for dismantling, repairing and replacing a range of instruments and faulty components in the instrumentation system.														
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>12th grade pass</td> <td>No Experience required.</td> </tr> <tr> <td>2</td> <td>Completed 2nd year of 3-year diploma (after 10th)</td> <td>No Experience required.</td> </tr> <tr> <td>3</td> <td>10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent.</td> <td>No Experience required.</td> </tr> </tbody> </table>			S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	12th grade pass	No Experience required.	2	Completed 2nd year of 3-year diploma (after 10th)	No Experience required.	3	10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent.	No Experience required.
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)														
1	12th grade pass	No Experience required.														
2	Completed 2nd year of 3-year diploma (after 10th)	No Experience required.														
3	10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent.	No Experience required.														

			4	10th Grade Pass	3 year relevant experience																			
			5	Previous relevant Qualification of NSQF Level 3.5	1.5 year relevant experience																			
			6	Previous relevant Qualification of NSQF Level 3	3 year relevant experience																			
		b. Age: <As per Govt. Norms>																						
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	15	11. Common Cost Norm Category (I/II/III) (wherever applicable): I																					
12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)																							
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>Viva (Hours)</th><th>Total (Hours)</th></tr></thead><tbody><tr><td>Classroom (offline)</td><td>162</td><td>228</td><td>60</td><td>-</td><td>450</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)	Viva (Hours)	Total (Hours)	Classroom (offline)	162	228	60	-	450	Online					
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Classroom (offline)	162	228	60	-	450																			
Online																								
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO-2015/7311.67																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	- Predictive Maintenance Engineer L5.5, - Predictive data acquisition engineer L6																						
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted																							
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	Yes via Industry or College Engagement
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☐ Yes ☒ No
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: Ridhima Email : technicaladvisors@cgssc.org Website: www.cgssc.org Contact No.: +91-8882907092
23.	Final Approval Date by NSQC: 30 th April 2025	24. Validity Duration: 3 Years 25. Next Review Date: 30 th April 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 curriculum document.

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

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/N SQF 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.	Bridge Module & Follow the health and safety practices at work	CSC/N1335 NOS Version- 2.0	Non-Core	3	2	25	35	-	-	60	30	70	-	-	100	15
2.	Coordinate with co-workers to achieve work efficiency.	CSC/N1336 : Version No. – 2.0	Non-Core	3	1	10	20	-	-	30	30	70	-	-	100	10

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/N SQF 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)
3.	Calibrate the hydraulic, pneumatic, mechanical, electrical and electronic measuring and control equipment	CSC/N0801: : Version No. – 2.0	Core	4	5	55	65	30		150	30	70	-	-	100	35
4.	Carry out maintenance activities on instrumentation and control equipment	CSC/N0803 , v2.0	Core	4	6	60	90	30		180	30	70	-	-	100	35
5.	Employability Skills (30 hours)	DGT/VSQ/N 0101- Version No. – 1.0	Non-Core	4	1	12	18	-	-	30	20	30	-	-	50	5
Duration (in Hours) / Total Marks					15	162	228	60		450	140	310	-	-	450	100

Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/N SQF 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/N SQF 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: 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.	Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Diploma in Mechanical with 2 years of relevant industry experience specialization in Capital Equipment - Instrumentation Technician (Practical Skills & knowledge required in the relevant field). B. Tech in Mechanical with 1 year of relevant industry experience specialization in Capital Equipment - Instrumentation Technician (Practical Skills & knowledge required in the relevant field).
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2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	B. Tech in Mechanical/ Electronics/ Mechatronics with 6 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
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

	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma in Mechanical with 3 years of relevant industry experience specialization in Capital Equipment -Instrumentation Technician (Practical Skills & knowledge required in the relevant field). B.E/B. Tech in Mechanical with 2 years of relevant industry experience specialization in Capital Equipment -Instrumentation Technician (Practical Skills & knowledge required in the relevant field).
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Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	B. Tech in Mechanical/ Electronics/ Mechatronics with 6 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	B. Tech in Mechanical/ Electronics/ Mechatronics with 8 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
Assessment Mode (Specify the assessment mode)	Formative, Summative & Skill Assessment
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): No
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): No (Industry driven)
3.	Government /Industry initiatives/ requirement (Yes/No): Yes
4.	Number of Industry validation provided: 11
5.	Estimated nos. of persons to be trained and employed: 1921
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)	Q File
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2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Q File
3.	Annexure: Detailed Assessment Criteria (Mandatory)	Q File
4.	Annexure: Assessment Strategy (Mandatory)	Q File
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	NA
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	NA
7.	Annexure: Acronym and Glossary (Optional)	Available
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)	Available in QP
12.	Any other document you wish to submit:	NA

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	Wide-ranging specialized theoretical learning requirements • Process of preparing the testing equipment • Process of testing the measuring and control equipment • Process of carrying out fault management • Process calibrating the measuring and control equipment • Process of preparing for the maintenance activities	The job involves a range of theoretical understanding and practical skills as can be seen from the job requirements given in the adjacent cell. The skills include setting, adjusting and validating mechanical, pneumatic, hydraulic, electrical and electronic	4

	• Process of carrying out the maintenance activities • Process of coordinating with the supervisor	measuring and control instruments and carrying out maintenance activities on instrumentation and control equipment according to the approved procedures	
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Understand the concepts and benefits of Industry 4.0 and the Industrial Internet of Things (IIoT). • Understand the SOP for commissioning the measuring equipment. • Knowledge of relevant tools and equipment for checking measuring equipment for faults. • Understand the process of recommissioning the measuring equipment. • Knowledge of repairing faulty instrumentation systems. • Able to understand how to minimise risks from the hazards associated with carrying out mechanical maintenance activities • Understand the functioning of different process plants and the appropriate measuring and control equipment	As indicated by the knowledge and understanding requirements mentioned in the adjacent cell, the job holder needs to have a wide range of information for dismantling, repairing and replacing a range of instruments and faulty components in the instrumentation system.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Plan the testing/calibration activities and prepare the appropriate schedules • Perform the operational/function checks • Determine the device isolation requirements	As indicated by the performance criteria in the adjacent cell, the job holder needs to have wide-ranging practical skills for instruments and faulty	4

	• Carry out relevant documentation manually and/ or electronically • Determine the faulty conditions and plan corrective action • Recommission the equipment according to the standard procedure • Check the technical and mechanical systems to ensure their operation	components in the instrumentation system.	
Broad Learning Outcomes/Core Skill	Logical and mathematical skills • Follow the technical specification and appropriate procedures. • Perform work-related calculations Collecting and organising information • Use the standard templates and tools for documenting work • Collect the relevant information concerning the instruments and faulty components in the instrumentation system and carry out the appropriate documentation.	The job holder requires logical and relevant mathematical skills for instruments and faulty components in the instrumentation system. As indicated by the performance criteria in the adjacent cell, the job involves collecting the relevant information and preparation of appropriate documents, as required in the job role.	4
Responsibility	• Responsible for determining the test requirements • Responsible for planning the testing/calibration activities and preparing the appropriate schedules • Responsible for carrying out standard serviceability tests and calibration.	A Technician Instrumentation is responsible for dismantling, repairing and replacing a range of instruments and faulty components in the instrumentation system. The individual is also responsible for	4

	- Responsible for inspecting and testing the operation of instruments and systems using the relevant testing devices. - Responsible for recommissioning the equipment. - Responsible for preparing and updating the relevant maintenance schedules and plans. - Responsible for conducting the appropriate tests related to the functional performance of instruments.	setting up test equipment, troubleshooting components of instruments, calibrating them and also preparing service reports, documenting the repair and replacement of parts.	
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Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 20-25 Nos

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Chairs/Tables	Standard	25
2	Computer with internet	Standard	25
3	LCD projector with screen	Standard	1
4	Trainer chair and Table	Standard	1
5	Demonstration table pin up boards	Standard	1
6	White board with marker	Standard	1
7	Calibration Sensors	Load Cells, Strain Gauges, Transducers, Mechanical Governors,	1 Each
8	Testing Instrument	Manometers, Gyroscope, Screw Driver, Testers	1 Each
9	Speed Measurement Equipment	Standard	1

10	Linear Variable Differential Transducer	Standard	1
11	Cathode Ray Oscilloscope	Standard	1
12	Fire Extinguisher	Standard	1
13	Safety Gloves (Rubber)	Standard	25
14	Ear Plugs	Standard	25
15	Safety Shoes & Helmet	Standard	25
16	Goggles	Standard	25
17	First-Aid Kit	Standard	2

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Computer / Laptop
2. Whiteboard and marker
3. Projector

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	Wangfeng Aluminium Wheel (India) Pvt. Ltd.	Sanjeev Chaudhary	HR Head	Plot No. 15 to 18, Sec-8, Industrial Model TWP,Bawal, Haryana - 123501	8750231400		
2	Palak Plastic Pvt.Ltd.	Hem Chander Yadav	Director	Plot No. 25, Sec-3, Phase 1, IMT, Bawal, Rewari, Haryana - 123501	0124-4019506	palakplastic@gmail.com	
3	Hay Industry	Harshit Yadav	HR Head	504/4, Gali No. 4, Near Rajendra Hospital, Om Nagar, Gurugram,Haryana-122001	9212154114	industryhay@gmail.com	
4	AG Enterprises	Durgesh Gupta	Manager -HR	Room No. 1,2 nd Floor,Plot No. 345, Sector-08,IMT, Manesar, Gurugram Haryana -122051	8750279555	bd@agenterpriseshr.com	
5	Hans Enterprises	OP Yadav	Sr. OP Manager	Cyberwalk, Plot No.CP 9,Tower E,GF,Cabin No4, Sec-5,IMT,Manesar, Gurugram Haryana	8750801333	Enterprisesghans@gmail.com	
6	Palak Plastic Pvt.Ltd.	Sunil Kumar	Director	Plot No.345, Sec-8, IMT, Manesar, Gurugram Haryana-122051	9810075433	sunilyadav7143@gmail.com	
7	Revent	Krishnakant Shukla	DGM-Training	Forging Division, unit 2nd, Begumpur, Khataula, Post Office-Khandsa,,Gurugram , Haryana-122004	9262708933	Krishnakant.shukla@reventengineering.com	
8	Sudhir Foundation	Ravi Prakash	DGM-Training	Plot No.93, Sector-8,IMT,Manesar,Gurugram , Haryana-122051	7988101508	965sudhirfoundation@gmail.com	

9	JBM Group	Rajeev Kumar Sharma	VP-Head Skill Development – JBM Group	JBM Auto Limited, Skill Development Centre, Plot No.16, sector-20B, Faridabad, (Haryana)- 121007	8860281177	Rajeev.sharma@jbmgrou.com	
10	Subros	Pawan Yadav	HR Head	Plot No. 395-396, Sec-8, Phase-3, IMT Manesar, Gurugram, - 122050	9818148609	p.yadav@subros.com	
11	Texmaco	Rajeev Gupta	Chief Business Officer	Belgharia, 24 Parganas(North), Kolkata-700056	7042644994	Rajeev.gupta@texmaco.in	

Annexure: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
FY2025-2026	1657	523	166	52	17	5
FY2026-2027	1822	575	182	58	18	6
FY2027-2028	2004	633	200	63	20	6

Data to be provided year-wise for next 3 years

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

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed
	FY2022-2023	605	605	571	398	61	61	57	40	6	6	6	4
	FY2023-2024	625	625	574	402	63	63	57	40	6	6	6	4
	FY2024-2025	1506	740	679	475	151	74	68	48	15	7	7	5

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. PMKVY 4.0 CSM STT
2. Non PMKVY
3. TNSDC
4. Fee Based
5. NABARD
6. MSSDS
7. GSDM
8. SDIS Orissa State Skilling Scheme
9. NULM
10. SDIS DDU GKY

Content availability for previous versions of qualifications: NO

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

Languages in which Content is available: NO

Annexure: Blended Learning

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>

Annexure: Detailed Assessment Criteria

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

CSC/N1335: Follow the health and safety practices at the work

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain personal health and safety</i>	7	12	-	-
PC1. follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask	2	3	-	-
PC2. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	1	2	-	-

PC3. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	1	2	-	-
PC4. follow the recommended techniques while lifting and moving heavy objects to avoid injury	1	3	-	-
PC5. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	2	2	-	-
<i>Assist in hazard management</i>	4	10	-	-
PC6. identify existing and potential hazards at work	1	1	-	-
PC7. assess the potential risks and injuries associated with the identified hazards	1	3	-	-
PC8. coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards	1	3	-	-
PC9. handle hazardous materials safely and store them in the designated storage	1	3	-	-
<i>Check the first aid box, firefighting and safety equipment</i>	3	7	-	-
PC10. check the first aid box to ensure it is updated with the relevant first aid supplies	1	2	-	-

PC11. check and test the firefighting and various safety equipment to ensure they are in usable condition	1	3	-	-
PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	1	2	-	-
<i>Assist in waste management</i>	3	8	-	-
PC13. segregate waste into appropriate categories	1	3	-	-
PC14. recycle the recyclable waste appropriately	1	3	-	-
PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations	1	2	-	-
<i>Follow the fire safety guidelines</i>	3	12	-	-
PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely	1	4	-	-
PC17. follow the recommended practices for a safe rescue during a fire emergency	1	4	-	-
PC18. coordinate with the fire department to request assistance to extinguish a serious fire	1	4	-	-
<i>Follow the emergency and first-aid procedures</i>	7	12	-	-

PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety	1	2	-	-
PC20. follow the recommended practices to minimise loss to organisational property during an emergency	1	3	-	-
PC21. follow the recommended procedure to free a person from electrocution	1	2	-	-
PC22. administer appropriate first aid to the injured personnel	1	2	-	-
PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest	1	2	-	-
PC24. coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation	2	1	-	-
<i>Carry out relevant documentation and review</i>	3	9	-	-
PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information	1	3	-	-
PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident	1	3	-	-

PC27. assist in implementing appropriate changes to improve the health and safety conditions at work	1	3	-	-
NOS Total	30	70	-	-

CSC/N1336: Coordinate with co-workers to achieve work efficiency

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Work effectively with co-workers</i>	20	43	-	-
PC1. plan daily tasks at work to ensure their timely completion and efficient use of time	2	4	-	-
PC2. carry out work responsibilities adhering to the limits of authority	2	4	-	-
PC3. follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales	2	4	-	-
PC4. coordinate with the co-workers to achieve the work objectives efficiently	2	4	-	-

PC5. prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically	2	4	-	-
PC6. coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns	2	4	-	-
PC7. mentor and assist subordinates in the execution of their work responsibilities	2	4	-	-
PC8. identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures	2	4	-	-
PC9. use various resources efficiently to ensure maximum utilisation and minimum wastage	2	4	-	-
PC10. follow the recommended practices to avoid and resolve conflicts at work	1	4	-	-
PC11. follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work	1	3	-	-
<i>Communicate effectively with co-workers</i>	6	15	-	-

PC12. follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel	2	5	-	-
PC13. communicate clearly and politely to ensure effective communication with co-workers	2	5	-	-
PC14. follow the appropriate techniques for active listening during interactions	2	5	-	-
<i>Practice inclusion at work</i>	4	12	-	-
PC15. empathise with Persons with Disabilities (PwD)	2	6	-	-
PC16. adopt gender-neutral behaviour at work	2	6	-	-
NOS Total	30	70	-	-

CSC/N0801: Calibrate hydraulic, pneumatic and mechanical measuring and control equipment

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare the testing equipment</i>	2	4	-	-

PC1. check various components in the testing equipment for faults, wear and tear or damage	1	2	-	-
PC2. repair or replace the faulty/ worn-out/ damaged components, as appropriate	1	2	-	-
<i>Test the measuring and control equipment</i>	16	48	-	-
PC3. determine the test requirements, following the standard procedure	1	3	-	-
PC4. plan the testing/calibration activities and prepare the appropriate schedules	1	3	-	-
PC5. check the relevant equipment such as leads and fasteners for faults, wear and tear or damage	1	3	-	-
PC6. repair or replace the equipment, as appropriate	1	3	-	-
PC7. inspect the instruments to ensure they are free from damage and unwanted foreign objects	1	3	-	-
PC8. carry out standard serviceability tests and calibration; special-to-type tests; operational/function checks, and gauge repeatability and reliability tests	1	3	-	-

PC9. perform the operational/function checks	1	3	-	-
PC10. conduct the gauge repeatability and reliability tests	1	3	-	-
PC11. follow the relevant statistical process control methods during the calibration/ testing activities	1	3	-	-
PC12. inspect and test the operation of instruments and systems using the relevant testing devices to diagnose faults	1	3	-	-
PC13. select the appropriate test application method and testing equipment after the inspection of instrumentation systems and equipment/components	1	3	-	-
PC14. determine the device isolation requirements and follow the appropriate device isolation methods	1	3	-	-
PC15. follow the appropriate test procedures and application principles to assess the operation of instrumentation systems and equipment/components	1	3	-	-

PC16. identify the instances when testing/calibration activities cannot be completed or defects outside the planned schedule, and report it to the relevant personnel	1	3	-	-
PC17. use the relevant Industry 4.0 manufacturing technologies to ensure interconnectivity, automation, machine learning, and real-time data collection and analysis	1	3	-	-
PC18. carry out relevant documentation manually and/ or electronically with respect to the testing/calibration activities	1	3	-	-
<i>Carry out fault management</i>	4	8	-	-
PC19. analyse and verify the test results against the operational specifications to identify and localise faults	1	2	-	-
PC20. identify the existing and potential faults following the applicable standard procedure, and report to the relevant personnel as per the SOP	1	2	-	-
PC21. determine the faulty conditions and plan corrective action	1	2	-	-

PC22. prepare and document an action plan as per the applicable procedures, including all the relevant information	1	2	-	-
<i>Calibrate the measuring and control equipment</i>	8	10	-	-
PC23. check the calibration of measuring and control equipment to ensure it is as per the manufacturers' specifications	1	1	-	-
PC24. calibrate the measuring and control equipment as per the applicable physical standards using the appropriate calibration tools, equipment and techniques	1	1	-	-
PC25. perform the zero span and range checks on indicators/controllers using the recommended configuration	1	1	-	-
PC26. carry out appropriate adjustments to the operational specifications using the relevant calibration devices and procedures	1	1	-	-
PC27. recommission the equipment according to the standard procedure	1	1	-	-

PC28. coordinate with the relevant personnel to resolve any issues beyond own area of competence or experience	1	1	-	-
PC29. monitor the problem and update the supervisor about the progress or any delays in resolving the problem	1	2	-	-
PC30. carry out relevant documentation as per the organisational procedure	1	2	-	-
NOS Total	30	70	-	-

CSC/N0803: Carry out maintenance activities on instrumentation and control equipment

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for the maintenance activities</i>	3	9	-	-
PC1. prepare and update the relevant maintenance schedules and plans	1	3	-	-

PC2. perform appropriate risk assessments before testing and maintenance activities	1	3	-	-
PC3. coordinate with the operations and production teams to ensure the availability of critical systems and spares parts	1	3	-	-
<i>Carry out the maintenance activities</i>	20	44	-	-
PC4. use the correct and approved version of the company and/or manufacturer's drawings and maintenance documentation	1	3	-	-
PC5. follow the instructions in manufacturers' manuals to perform test and maintenance activities	1	2	-	-
PC6. follow the recommended maintenance schedules for critical systems, logging all repairs and inspections	1	2	-	-
PC7. carry out the maintenance activities on a range of instrumentation and control equipment, following the appropriate techniques and procedures	1	2	-	-
PC8. check the technical and mechanical systems to ensure their operation within the specified parameters	1	3	-	-

PC9. conduct instrumentation evaluation for hydraulic, pneumatic, mechanical, electrical and electronic measuring and control equipment	1	2	-	-
PC10. identify non-operational and malfunctioning systems in a timely manner to prevent any damage or loss	1	2	-	-
PC11. conduct the appropriate tests related to the functional performance of instruments, as required	1	2	-	-
PC12. test the instrumentation system operations to diagnose problems	1	2	-	-
PC13. use the appropriate scientific and analytic computer software, calculators, electronic probes, voltage and current meters to diagnose faults in circuitry	1	2	-	-
PC14. coordinate with the relevant personnel to evaluate the functioning of routine and emergency instruments and equipment	1	2	-	-
PC15. use the relevant testing devices to measure and control pressure, flow, temperature, level, motion, force, and chemical makeup	1	2	-	-
PC16. adjust the system components and replace the defective parts, as required	1	2	-	-

PC17. coordinate with engineers and process technicians to resolve the issues requiring their assistance	1	2	-	-
PC18. recommission the instrumentation system appropriately, to return it to service following repair and replacement activities	1	2	-	-
PC19. ensure compliance with the applicable policies, standards, and environmental and safety requirements while carrying out the required instrument maintenance or replacement activities	1	2	-	-
PC20. follow the applicable organisational procedure for the resolution of defects outside the planned schedule	1	2	-	-
PC21. carry out troubleshooting for test failures to determine root causes and develop processes to avoid repeat failure	1	2	-	-
PC22. carry out appropriate documentation to record the relevant information regarding the maintenance activities	1	3	-	-
PC23. follow the recommended practices to reduce the cost of repairing instruments and equipment while maintaining the quality of repairs	1	3	-	-
<i>Coordinate with the supervisor</i>	3	9	-	-

PC24. monitor the problem and update the superior about progress or any delays in resolving the problem	1	3	-	-
PC25. coordinate with the supervisor or relevant expert to resolve any issues which are out of authority or area of competence	1	3	-	-
PC26. identify appropriate improvements to the maintenance procedures and coordinate with the supervisor for their implementation	1	3	-	-
<i>Use resources optimally</i>	4	8	-	-
PC27. optimise the usage of electricity and other resources in various tasks and processes	2	4	-	-
PC28. connect the electrical tools and equipment safely, and turn them off when not in use	2	4	-	-
NOS Total	30	70	-	-

DGT/VSQ/N0101: Employability Skills (30 Hours)

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
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<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values – Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-

PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-

PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-

Assessment Parameters:

Assessment Plan:

1. Components of Assessment:

- Each subject will be assessed in three components: Theory (40% weightage), Practical (40% weightage), and On-job Training (OJT, 20% weightage).

2. Passing Parameters:

- To pass the semester, students must meet both the assessment parameters given below.

Parameter 1 - Weighted Semester Score:

- Students must achieve a minimum of 60% in the weighted average score across all three components (Theory, Practical, and OJT) for each subject.

Parameter 2 - Individual Component Score:

- Students need to score at least 40% in each individual component (Theory, Practical, and OJT) of every subject.

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 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:

- Check the Assessment location, date and time
- 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.

3. Assessment Quality Assurance levels/Framework:

- Question bank is created by the Subject Matter Experts (SME) are verified by the other SME
- Questions are mapped to the specified assessment criteria
- Assessor must be ToA certified & trainer must be ToT Certified

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

5. Method of verification or validation:

- Surprise visit to the assessment location

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored

On the Job:

1. Each module (which covers the job profile of **Capital Equipment Instrumentation Technician**) will be assessed separately.
2. The candidate must score 60% 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
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4. Assessment of each Module will ensure that the candidate is able to:
 - Effective engagement with the customers
 - Understand the working of various tools and equipment

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Annexure: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
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 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.
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