

National Council for Vocational Education & Training (NCVET)

Agenda

for

34th Meeting

of

**NATIONAL SKILLS QUALIFICATION
COMMITTEE**

Date: 30th November 2023

Time: 11:30 AM

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1. AGENDA ITEM 01: Confirmation of the Minutes of the Meeting of the National Skills Qualification Committee (NSQC)

1.1 The Minutes of the Meeting of 33rd NSQC held on 01st November 2023 were circulated. No comments have been received.

1.2 However, the following changes are proposed:

1.2.1 The Apparel, MadeUps & Home Furnishing Sector Skill Council (AMHSSC) has rationalized 12 out of total 33 qualifications. However, in the minutes of 33rd NSQC meeting in **Annexure II** it was inadvertently mentioned as Nil.

1.2.2 Three Qualifications of Directorate General of Remount and Veterinary Corps were approved in the 30th NSQC meeting held on 23rd June 2023. The names of the qualifications were erroneously mentioned in the minutes of 30th NSQC. The necessary corrections are given as under:

Sr. No.	Name of Qualification	NSQF level	Corrected Name of the Qualification
01	Advanced Equine Farrier (Advance)	4.5	Equine Farrier (Advance)
02	Advanced Specialist Animal Groomer (Advance)	4.5	Specialist Animal Groomer
03	Advanced Horse Trainer (Advance)	4.5	Horse Trainer (Advance)

The Minutes are placed for confirmation by the Committee.

2. AGENDA ITEM 02: Action Taken Report on the Decisions Taken in the 33rd Meeting of the NSQC

2.1. Decisions taken in the 33rd Meeting of NSQC

Sl. No	Subject Matter Pertains to	Decision of NSQC	Action Taken / status of Compliance
1	Status of NSQF aligned and approved qualifications rationalized with the inclusion of ES and making NOSs multiples of 30 hours, as applicable, in order to align with the National Credit Framework (NCrF).	The Committee in its 33 rd meeting instructed all the awarding bodies to complete rationalization of qualifications by the 33 rd meeting of NSQC, i.e., 1 st November 2023. The qualifications that remain unratinalized beyond this timeframe it will be presumed that Awarding Body concerned doesn't want to pursue the qualification and the same will be archived on the NQR portal.	A detailed list is attached as Annexure I .
2	One qualification of Medhavi Skills University was presented for NSQC approval	The qualification was conditionally approved subject to change in the Entry Requirement of the qualification.	Medhavi Skills University has submitted the qualification with the amended entry requirement and the file has been uploaded.

3	NSQF alignment and approval of qualifications and certification of Participants at various levels in the World Skills Competition	<p>a. Recognised ABs (SSCs) of the concerned sectors to adopt WorldSkills standards including the nomenclature of skills NOS and weightage and prepare these qualifications as per the National Skills Qualification Framework and submit before the National skills Qualification Committee (NSQC) for consideration of NSQF alignment and approval by the committee by 18 November 2023 on Top Priority.</p> <p>b. Concurrently, owing to the peculiarities of training and assessment of the participants for preparing them in run-up to the World skills event, a combined ToT and ToA qualifications of the six sectors may also be developed by the respective recognised ABs</p>	Qualifications are awaited
4	Status of provisioning dashboard for NCVET on SID and free registration of recognised Awarding Bodies and Assessment Agencies on SID	NSDC has confirmed completion of providing access to awarding bodies on SID. Attributes required for the dashboard of Assessment Agency and NCVET has been shared with NSDC on 3rd November 2023.	The compliances awaited from NSDC.
5	Conditional approval of one new qualification submitted by Uttar Pradesh Skill Development Mission (UPSDM) named "Junior Panman Operator (SugarMill)".	One new qualification of Uttar Pradesh Skill Development Mission (UPSDM) named " Junior Panman Operator (SugarMill) " was conditionally approved in the 31 st NSQC subject to submitting requisite industry validation.	Compliances are met.

The agenda is placed for information and approval of the Committee.

3. AGENDA ITEM 03: Revision in the Tool Kit List of 03 and 35 NSQF Aligned and approved CTS Qualifications of DGT and Logistics Sector Skill Council (LSC) respectively.

- 3.1. **Three** qualifications of DGT namely "**IoT Technician (Smart Agriculture), IoT Technician (Smart City) and IoT Technician (Smart healthcare)**" were approved by NCVET in the 22nd NSQC meeting held on 25th August 2022 and uploaded on NQR Website.
- 3.2. Subsequently, a Trade Committee Meeting was held on 16th March 2023 at NSTI (W) Bengaluru for revision of Tool Kit List with respect to the above-mentioned **CTS Qualifications**. DGT has accordingly revised the Tool Kit Lists of the three aforementioned qualifications without any other changes in the NSQF parameters and re-submitted the qualifications for approval. The list of originally approved and revised tool kits for all the three qualifications is attached as **Annexure II (A)**.
- 3.3. LSC has also submitted 35 NSQC approved active qualifications for addition of new tools and equipment list in the qualifications. These qualifications incorporate additional software tools such as Warehouse Management System (WMS), Transportation Management System (TMS) & Logistics Learning

Management System (LLMS). Tools consist of a wide range of content, self-paced courses and digital learning materials. (List of qualifications with the details of tools is attached at **Annexure II (B)**). There is no change in the notional hours, levels, minimum entry criteria and the NOSs of the qualifications.

The agenda is placed for information & approval of the Committee.

4. AGENDA ITEM 04: Adoption of NSQF aligned and approved Qualifications by various Defence Awarding Bodies.

- 4.1. In the 31st Meeting of the NSQC, it was discussed that a considerable number of NSQF aligned and approved qualifications are common and applicable across Defence Forces with or without minor modifications, therefore Defence Awarding Bodies may adopt such qualifications as per the NCVET Guidelines for Adoption of Qualifications by Awarding Bodies. However, for better co-ordination, record keeping, effective execution & implementation, it was decided by the Committee that list of all such qualifications which are being proposed for adoption by the Indian Army Awarding Bodies be sent to Army Training Command (ARTRAC) and a consolidated list duly vetted by ARTRAC be placed before NSQC for grant of approval. Modifications, if required, may also be undertaken in the adopted qualifications subject to adherence to the parameters as per the Guidelines for Adoption of Qualifications.
- 4.2. Subsequently, ARTRAC vide letter dated 20th Nov 2023, have shared a list of following 32 Qualifications which are proposed for adoption by 15 Directorates of Indian Army (Awarding Bodies).

S. No.	Qualification	NQR Code	Developer Body	Number of Adopting Bodies
1	Assistance Security Officer	QG-5.5-DF-01126-2023-V1-ARMD	Directorate General of Armoured Corps	1
2	Light Motor Vehicle Trainer	QG-4.5-DF-01122-2023-V1-ARMD	Directorate General of Armoured Corps	2
3	Commercial Vehicle Trainer	QG-4.5-DF-01128-2023-V1-ARMD	Directorate General of Armoured Corps	2
4	Radio Communication Operator	QG-4.5-DF-01127-2023-V1-ARMD	Directorate General of Armoured Corps	2
5	Chef Executive	QG-4.5-DF-01110-2023-V1-ASC	Directorate General of Supplies & Transport	1

6	Commis Chef (Advanced)	QG-4.5-DF-01121-2023-V1-ARMD	Directorate General of Supplies & Transport	1
7	Communication Centre & Radio System Specialist	QG-5.5-DF-01137-2023-V1-SIG	Directorate General of Signals	1
8	Draughtsman Topographical	QG-4.5-DF-01130-2023-V1-SIG	Directorate General of Signals	1
9	Senior Draughtsman Topographical	QG-05-DF-01141-2023-V1-SIG	Directorate General of Signals	1
10	Supervisor Draughtsman Topographical	QG-05-DF-01141-2023-V1-SIG	Directorate General of Signals	1
11	Artisan Metal Works Technician	QG-4.5-DF-01157-2023-V1-EME	Corps of Electronics and Mechanical Engineers	1
12	Senior Technical Supervisor Artisan Metal Works	QG-05-DF-01179-2023-V1-EME	Corps of Electronics and Mechanical Engineers	2
13	Manager Metal Works	QG-5.5-DF-01180-2023-V1-EME	Corps of Electronics and Mechanical Engineers	1
14	Corporate Investigator	QG-5.5-DF-01195-2023-V1-MILINT	Director General of Military Intelligence	1
15	Field Investigator	QG-4.5-DF-01191-2023-V1-MILINT	Director General of Military Intelligence	1
16	Private Detective	QG-05-DF-01192-2023-V1-MILINT	Director General of Military Intelligence	1
17	Security Manager	QG-05-DF-01193-2023-V1-MILINT	Director General of Military Intelligence	1
18	Foreign Language Interpreter	QG-05-DF-01217-2023-V1-AEC	Additional Directorate Army Education Corps	1

19	Music Performer	QG-4.5-DF-01220-2023-V1-AEC	Army Education Corps	5
20	Guest House Coordinator	QG-4.5-DF-01319-2023-V1-AAD	Directorate General of Army Air Defence	9
21	Material Handler	QG-4.5-DF-01211-2023-V1-AAD	Directorate General of Army Air Defence	1
22	Production Line Operator	QG-4.5-DF-01212-2023-V1-AAD	Directorate General of Army Air Defence	1
23	Radar Jammer Vehicle Operator	QG-4.5-DF-01214-2023-V1-AAD	Directorate General of Army Air Defence	1
24	Laundry Manager	QG-5.5-DF-01189-2023-V1- MECHINF	Additional Directorate General of Mechanised Infantry	1
25	Security Supervisor	QG-4.5-DF-01184-2023-V1-INF	Directorate General of Infantry	3
26	Senior Store Keeper	QG-4.5-DF-01216-2023-V1-AOC	Army Ordnance Corps	1
27	Senior Technician Wood Work	QG-4.5-DF-01307-2023-V1-ENGRS	Corps of Engineers	8
28	Senior Technician Conventional & CNC Machine Operation	QG-4.5-DF-01309-2023-V1-ENGRS	Corps of Engineers	1
29	Senior Technician - Painting & Decorating	QG-4.5-DF-01312-2023-V1-ENGRS	Corps of Engineers	7
30	Senior Technician Sheet Metal Works	QG-4.5-DF-01304-2023-V1-ENGRS	Corps of Engineers	3

31	Senior Technician Welder	QG-4.5-DF-01303-2023-V1-ENGRS	Corps of Engineers	1
32	Survey Technician	QG-4.5-DF-01306-2023-V1-ENGRS	Corps of Engineers	1

The agenda is placed for the information and approval of the Committee.

5. AGENDA ITEM 05: Submission of Qualifications for NSQF Alignment & Approval

- 5.1. A total of **119 (117 New and 02 Revised)** qualifications, **12 NOSs and 03 Micro-Credentials** have been received at NCVET as on 30th September 2023 and **105 (103 New and 02 Revised)** qualifications are being considered for placing in this NSQC. Detailed status of the Qualifications received are in the succeeding paras.
- 5.2. **Qualifications received from all recognized ABs other than Indian Defence Forces.**
 - 5.2.1 A total of **57 (56 New and 01 Revised)** were received from all recognized ABs (other than Defence Forces) as above and the same are being considered for placing in the 34th NSQC.

i. The details of qualifications being considered is as below:

S. No	Name of the Awarding Body	Files considered for NSQC		
		New	Revised	Total
1	DGT	2	0	2
2	Domestic SSC	3	0	3
3	Handicrafts and Carpet Sector Skill Council	0	1	1
4	Logistics Sector Skill Council	3	0	3
5	Automotive Skills Development Council	4	0	4
6	Hydrocarbon Sector Skill Council	7	0	7
7	Skill Council for Person with Disability	26	0	26
8	Centurion University of Technology and Management	2	0	2
9	Netturi Technical Training Foundation	9	0	9
	Total	56	1	57

ii. List of NOSs

Sr. No	Name of the Awarding Body	NOS considered for NSQC		
		New	Revised	Total
1	SSC NASSCOM	10	0	10
2	Textiles Sector Skill Council	2	0	2
	Total	12	0	12

III. List of Micro-credentials

Sr. No	Name of the Awarding Body	Micro-Credentials considered for NSQC		
		New	Revised	Total
1	Domestic Workers Sector Skill Council	2	0	2
2	Hydrocarbon Sector Skill Council	1	0	1
	Total	3	0	3

5.3 Qualifications received from recognized Indian Defense Forces ABs

5.3.1 A total of **48 qualifications (47 New and 01 Revised)** have been received from Indian Defense Forces (Tri-Services) and all are being considered in the 34th NSQC. The snapshot of qualifications considered is as below:

S. No.	Name of the Directorate	Files considered for NSQC		
		New	Revised	Total
1	Indian Air Force	24	1	25
2	Directorate General Armoured Corps	03	0	03
3	Army Air Defence	02	0	02
4	Corps of Engineers	11	0	11
5	Directorate General of EME	06	0	06
6	Directorate General Remount Veterinary Services	01	0	01
	Total	47	1	48

5.4 The details of the qualifications, NOSs, Micro Credentials and Qualifications of Defense Forces Awarding Bodies are placed at **Annexure IV, Annexure V, Annexure VI, and Annexure VII** respectively. The list of **16 qualifications** not being considered in this NSQC is attached at **Annexure VIII**.

Submitted for the kind consideration and approval of the Committee.

6 AGENDA ITEM 06: Detailed Model Curriculum and Content for the Qualifications to be offered in PMKVY 4.0

6.1 During a meeting held on November 21, 2023 under the Chairmanship of Joint Secretary, MSDE, a notable concern has been observed regarding NSQC aligned and approved qualifications under PMKVY 4.0 that the comprehensive handbooks for these qualifications have not been prepared, resulting in a significant impact on the overall quality and successful implementation of these qualifications.

6.2 A total of 715 NSQF aligned and approved qualifications/ job roles were presented with following observations:

S. No.	Type of Handbooks	No of qualifications for which Handbooks are not available
a	Trainee Handbooks	372
b	Trainer's Handbooks	516

6.3 It was also observed with concern that out of the 89 NSQF aligned and approved future skills qualifications being implemented under the above said scheme almost all the qualifications do not have complete requisite training materials. The details are as under:

S. No.	Type of Handbooks	No of qualifications for which Handbooks are not available
a	Trainee/ Trainer's Handbooks	48

6.4 Further, in the 24th and 28th National Skill Qualification Committee (NSQC) meetings held on 17th November 2022 and 29th March 2023 respectively, where in principle approval to the qualifications including future skills qualifications were given subject to meeting the following conditions:

- a. The qualifications having remaining validity period of 1 and 2 years shall be revised and validity to be extended within the stipulated time.
- b. The ABs/ SSCs who have not submitted the PMKVY 4.0 enlisted qualifications to the NCVET for approval, may submit them on priority for fast-track approval.
- c. The ABs/ SSCs who want to include their qualifications in to the PMKVY 4.0 list, may take up their case with MSDE.
- d. More number of future skill qualifications may be included as part of the PMKVY 4.0

6.5 It is proposed to the committee that within 3 months from the qualification approval date, the concerned awarding body provides written confirmation signed by the competent authority affirming the development of the content. In case of non-compliance the qualifications will be deactivated/archived.

Submitted for the kind consideration and approval of the Committee.

7 AGENDA ITEM 07: PM Vishwakarma Phase II Upskilling of 120 Hours – Development of NOSSs/ Qualifications

7.1 **PM Vishwakarma Scheme** has been launched by the Hon'ble PM on 17th September 2023 with an objective of acquainting Vishwakarmas on innovative modern/ power tools, reduce drudgery of performing jobs and enhance the overall proficiency levels of Vishwakarmas with regard to digital literacy, financial literacy, marketing & branding and self-employment knowledge. With a view to honour PM Vishwakarma Gurus across various trades, a “Sammaan Samaroh of Vishwakarma Gurus” was held on 24th November 2023 at Bhubaneshwar, during which the Hon'ble Minister of Skill Development & Entrepreneurship felicitated 26 expert

artisans and craftsman of various trades who will further act as brand ambassadors of the scheme.

7.2 The Course structure of the PM Vishwakarma Scheme has been conceptualized in the following manner:

- a) **PM Vishwakarma Scheme 1.0** - Basic module of 40 hours
- b) **PM Vishwakarma Scheme 2.0** - Advanced module of 120 hours

7.3 In the 31st meeting of NSQC, the Committee had accorded approval to the 28 qualifications (Upskilling NOSs) in 18 identified trades to be imparted during Phase 1.0 under Basic module of the PM Vishwakarma Scheme. Also, the Committee had advised that a separate section be created on NQR for "PM Vishwakarma Scheme Qualifications". Accordingly, a separate section has been created for "PM Vishwakarma Scheme Qualifications" on NQR and the details of all qualifications under Basic module of 40 hours, including the Model Curriculum, have been uploaded on the NQR.

7.4 Further, the learning material/ content in the form of handbooks developed for both trainees (Vishwakarmas) and Trainers for all 28 qualifications under the Basic module has also been prepared by the respective Awarding Bodies in consultation with NSDC. Subsequently, NSDC has submitted the soft copies of both the sets of Handbooks developed for Trainees (Vishwakarmas) and Trainers to NCVET in English language. In addition, as discussed in the previous consultative meetings, the learning material/ content for PM Vishwakarma qualifications shall also be developed in Bhartiya languages to ensure enhanced learning outcomes of the training for the Vishwakarmas. However, the compliance on the same is still awaited.

7.5 The structure of the Advanced module of 120 hours to be imparted under PM Vishwakarma Scheme 2.0 has been conceptualized in the following manner:

S.No.	Skills to be imparted under Advanced Module of 120 hours	Type of skills	Estimated Hours of Learning
a.	Usage of any new machinery/tools/equipment	Core skills (trade specific)	30 hours
b.	Entrepreneurship skills and design workshops		45 hours
c.	Advanced Digital Skills	Generic skills for all qualifications	15 hours
d.	Advanced Financial skills		15 hours
e.	Advanced Marketing and Outreach skills		15 hours
Total			120 Hours

7.6 The respective Awarding Bodies are yet to submit their advanced qualifications for NSQF alignment and approval by NSQC. In addition, the timelines for the development of learning material/ content in the form of handbooks for all 28 qualifications under the Advanced module of 120 hours is to be provided by NSDC.

Submitted for the information and suggestions of the Committee.

8 AGENDA ITEM 08: Finalisation of Training of Trainers (ToT) and Training of Assessors (ToA) Guidelines

8.1 The Draft Guidelines for Training of Trainers (ToT) and Training of Assessors (ToA) have been formulated after deliberations over multiple details consultations with stakeholders. The draft guidelines were uploaded online on the NCVET website for public consultation. The inputs received from the stakeholders were incorporated into the Draft Guidelines and the final guidelines is being notified shortly.

The draft Guidelines for ToT and ToA is placed on NCVET website.

Submitted for the information of the Committee.

9 AGENDA ITEM 09: Notification of Guidelines for NSQF alignment and Creditisation of Skilling & Training Courses & Qualifications of Multinational Companies (MNCs) and Leading Industry

9.1 The Multinational Companies (MNCs) contribute significantly to country's economy by catering to both local and global requirements of skilled workforce. The MNCs are known to hire the best talent globally, skill and train them in best technical knowledge and innovative thinking. The participation of the MNCs, including the leading Indian Enterprises in the skilling ecosystem is imperative as they are not only the final consumers of the products and services in the form of skilled workforce but also torch bearers in the future of work through world class skilling on their products, processes and services.

9.2 The National Education Policy (NEP) and National Credit Framework (NCrF), enable recognition of all types of learning and provide for multiple pathways for learners to move from skilling to education and vice-versa. Accordingly, to facilitate recognition and formalisation of MNC qualifications, the "*Guidelines for Creditisation of Training courses and Qualifications of Multinational Companies (MNCs) and Leading Indian Enterprises, including, Original Equipment Manufacturer (OEM), Original Design Manufacturer (ODM), and Value Added Reseller (VAR)*", have been formulated by NCVET. These guidelines aim to recognise, formalise and creditise the skill training being carried out by these entities.

The Guidelines were approved in the 9th Council meeting of NCVET held on 17th August, 2023 and were notified on 15th November 2023 after due consultation with stakeholders including MSDE.

Submitted for the information of the Committee.

10 AGENDA ITEM 10: Finalisation of SOPs for operationalization and implementation of National Credit Framework (NCrF) in HE, SE and VETS for Public Consultations:

10.1 The National Education Policy 2020 (NEP 2020) envisions making education more holistic and effective by inculcating more "experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centered, discussion-based, and flexible" learning and by removing hard separation between the various disciplines like Arts, Science & Commerce and also between curricular, co-curricular and extra-

curricular activities. NEP 2020 with its motto of “equitable and inclusive education” lays emphasis on the integration of general (academic) education, and vocational education ecosystem with a view to reform mainstream academic as well as technical and vocational education and training (TVET) provision in India and provides avenues for life-long learning through enhanced opportunities.

10.2 To fulfil this vision of National Education Policy 2020, the Government of India constituted a High-Level Committee, on 18th November 2021, to develop a National Credit Accumulation & Transfer Framework. The National Credit Framework has been formulated by the Government of India and also been notified by UGC on 10th April 2023 and adopted by NCVET on 12th May 2023. The National Credit Framework (NCrF) has been jointly developed by a High-level Committee comprising of UGC, AICTE, NCVET, NIOS, CBSE, NCERT, Ministry of Education, DGT, and Ministry of Skill Development as a comprehensive framework encompassing elementary, school, higher, and vocational education & training, and it integrates all dimensions of learning i.e. academics, vocational skills and experiential learning including relevant experience and professional levels acquired.

10.3 To further strengthen the operationalisation and for effective implementation of the NCrF, Government of India constituted a High Level Committee (HLC) on 10th May 2023. The Committee is chaired by Chairperson UGC along with Chairperson NCVET.

10.4 As NCrF enables the assignment, accumulation, storage, transfer and redemption of credit with multiple entry and multiple exit (ME-ME) options to facilitate academic equivalence and lifelong learning, its effective implementation becomes a matter of utmost importance. Realising this, the government has formulated a High Level Committee which along with overseeing the implementation shall also remove other operational difficulties during implementation. The HLC has further formulated three subcommittees for effective operationalisation of NCrF in Higher Education, Vocational Education & School Education.

10.5 The three subcommittees have developed Standard Operation Procedures for operationalisation of NCrF in their respective areas. The report of the HLC is being finalised and shall be placed for public consultation.

Submitted for the information of the Committee.

11 AGENDA ITEM 11: Creditisation of training & certification of Mahatma Gandhi National Fellow (MGNF) personnel of MDSE whose trained has been conducted by the 9 IIMs

11.1 The Hon'ble Minister for Skill Development and Entrepreneurship in the convocation program of MGNF personnel held on 31.10.2023 announced creditisation of the MGNF programme as per the National Credit Framework (NCrF). Accordingly, NCVET has drafted an indicative mechanism for calculation of credits for MGNF programme and the same has been shared with MSDE for further

implementation. A meeting in this regard was also held at MSDE with all the 09 IIMs on 16th November 2023 for finalisation and adoption of mechanism for credit calculation. Based on the discussions in the meeting MSDE has nominated Prof. Mukherjee IIM Bangalore as nodal officer for coordinating with other IIMs in order to draw a common approach for Creditisation of MGNF programme and share the recommendations with MSDE.

Submitted for the information of the Committee.

12 AGENDA ITEM 12: Additional Agenda/Any Other Matter with the Permission of the Chair

List of Rationalized Qualifications

Details of the ABs who have completed rationalization of their Qualifications				
S. No	Name of ABs	Number of NSQF aligned & approved Qualifications	Number of rationalized NSQF aligned & approved Qualifications	Number of qualifications overdue for rationalization
1	Logistics Sector Skill Council (LSC)	54	54	0
2	Telecom Sector Skill Council (TSSC)	49	49	0
3	Healthcare Sector Skill Council (HSSC)	42	42	0
4	Sports, Physical Education, Fitness and Leisure Skills Council (SPEFL)	41	41	0
5	Capital Goods Skill Council (CGSC)	37	37	0
6	Central Institute of Petrochemicals Engineering & Technology CIPET)	37	37	0
7	Infrastructure Equipment Sector Skill Council (IESC)	28	28	0
8	Life Sciences Sector Skill Development Council (LSSSDC)	28	28	0
9	Skill Council for Mining Sector (SCMS)	26	26	0
10	B&WSSC	25	25	0
11	Karnataka Skill Development Corporation	23	23	0
12	Instrumentation Automation Surveillance & Communication Sector Skill Council (IASC)	16	16	0
13	Power Sector Skill Council (PSSC)	16	16	0
14	Directorate of Jan Shikshan Sansthan	15	15	0

15	Banking financial services and insurance sector skill council (BFSI SSC)	13	13	0
16	Furniture & Fittings Skill Council (FFSC)	13	13	0
17	Leather Sector Skill Council (LSSC)	12	12	0
18	Paints and Coatings Skill Council	10	10	0
19	Water Management and Plumbing Skill Council (WMPSC)	10	10	0
20	Shri Vishwakarma Skill University	6	6	0
21	Medhavi University	6	6	0
22	Centurion University of Technology and Management	4	4	0
23	National Film Development Corporation	3	3	0
24	Broadcast Engineering Consultants India Limited (BECIL)	3	3	0
25	Central Board of Secondary Education	1	1	0
26	National Institute of Open Schooling	1	1	0
27	Electronics Sector Skills Council of India (ESSCI)	94	94	0
28	Handicrafts and Carpet Sector Skill Council (HCSSC)	94	94	0
29	Indian Iron and Steel Sector Skill Council (IISSSC)	27	27	0
30	Aerospace and Aviation Sector Skill Council (AASSC)	5	5	0
31	Haryana State Electronics Development Corporation Limited (HARTRON)	17	7	10^
32	Skill Council for Person with Disability*	284	276	8*

33	IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM) #	94	79	15#
34	Skill Council for Green Jobs (SCGJ)\$	68	64	4\$
35	Textile & Handloom Sector Skill Council (TSC) &	71	40	31&
36	Apparel, Madeups & Home Furnishing Sector Skill Council (AMHSSC)%	33	30	3%
Total		1306	1235	71

Details of the ABs who have partially completed rationalization of their Qualifications

1	Directorate General of Training	465	213	252
2	Agriculture Skill Council of India (ASCI)	168	153	15
3	Automotive Skills Development Council (ASDC)	132	91	41
4	Rubber, Chemical & Petrochemical Skill Development Council	112	87	25
5	Media & Entertainment Skill Council (MESC)	100	25	75
6	Tourism and Hospitality Skill Council (THSC)	82	32	50
7	Food Industry Capacity & Skill Initiative (FICSI)	71	35	36
8	National Institute of Electronics and Information Technology	68	39	29
9	Construction Skill Development Council of India (CSDCI)	66	47	19
10	Gems & Jewellery Skill Council of India	46	21	25
12	Management Entrepreneurship and Professional Skills Council (MEPSC)	40	16	24
13	Hydrocarbon Sector Skill Council (HSSCI)	35	32	3

14	Retailers Association Skill Council of India (RASCI)	17	16	1
15	Domestic Worker Sector Skill Council (DWSSC)	14	13	1
16	Additional Skill Acquisition Programme, Government of Kerala	9	5	4
Total		1425	825	600

Details of the ABs who have not rationalized their Qualifications

1	National Academy of RUDSETI, Bengaluru	59	0	59
Total		59	0	59

[^] HARTRON will be bringing the remaining 10 remaining qualifications as revised qualifications for NSQC approval separately.

^{*} SCPWD will be bringing the remaining 8 qualifications as new qualification to the NSQC for approval, as the NOSs of the domain qualification has undergone changes.

[#] IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM) will be bringing the remaining 15 qualifications as revised qualifications to the NSQC for approval, as the Notional Hours, NOSs of the domain qualification has undergone major changes.

^{\$} Skill Council for Green Jobs (SCGJ) will be bringing 4 remaining qualifications as revised qualifications for NSQC approval separately.

[&] Textile & Handloom Sector Skill Council (TSC) will be bringing 31 remaining qualifications as revised qualifications for NSQC approval separately.

[%] Apparel, Madeups & Home Furnishing Sector Skill Council (AMHSSC) will bring 3 remaining qualifications to NSQC for approval.

Tool Kit List of 03 NSQF Aligned and approved CTS Qualifications of DGT

COMPARATIVE LIST OF TOOLS & EQUIPMENT						
A. IoT TECHNICIAN (SMART CITY) (For batch of 24 candidates)						
Existing			Modified			
Sl. No.	Name of the Tools and Equipment	Specification	Quantity	Name of the Tools and Equipment	Specification	Quantity
TRAINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-12 is required additionally)						
1.	Connecting screwdriver	10 X 100 mm	12 Nos.	Connecting screwdriver	10 X 100 mm	12 Nos.
2.	Neon tester 500 V.	500 V	8 Nos.	Neon tester 500 V.	500 V	8 Nos.
3.	Screwdriver set	Set of 7	12 Nos.	Screwdriver set	Set of 7	12 Nos.
4.	Insulated combination pliers	150 mm	8 Nos.	Insulated combination pliers	150 mm	8 Nos.
5.	Insulated side cutting pliers	150mm	8 Nos.	Insulated side cutting pliers	150mm	8 Nos.
6.	Long nose pliers	150mm	8 Nos.	Long nose pliers	150mm	8 Nos.
7.	Soldering iron	25 Watt, 240 Volt	12 Nos.	Soldering iron	25 Watt, 240 Volt	12 Nos.
8.	Electrician knife	100 mm	8 Nos.	Electrician knife	100 mm	8 Nos.
9.	Tweezers	150 mm	12 Nos.	Tweezers	150 mm	12 Nos.
10.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12 Nos.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12+1 Nos.
11.	Soldering Iron Changeable bits	15 Watt, 240 Volt	8 Nos.	Soldering Iron Changeable bits	15Watt, 240 Volt	8 Nos.
12.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.
B. SHOP TOOLS, INSTRUMENTS – For 2 (1+1) units no additional items are required						

Lists of Tools:						
13.	Steel rule graduated both in Metric and English Unit	300 mm,	4 Nos.	Steel rule graduated both in Metric and English Unit	300 mm,	4 Nos.
14.	Precision set of screw drivers	T5, T6, T7	2 Nos.	Precision set of screw drivers	T5, T6, T7	2 Nos.
15.	Tweezers – Bend tip		2 Nos.	Tweezers – Bend tip		2 Nos.
16.	Steel measuring tape	3 meter	4 Nos.	Steel measuring tape	3 meter	4 Nos.
17.	Tools makers vice	100mm (clamp)	1 No.	Tools makers vice	100mm (clamp)	1 No.
18.	Tools maker vice	50mm (clamp)	1 No.	Tools maker vice	50mm (clamp)	1 No.
19.	Crimping tool (pliers)	7 in 1	2 Nos.	Crimping tool (pliers)	7 in 1	2 Nos.
20.	Magneto spanner set	8 Spanners	2 Nos.	Magneto spanner set	8 Spanners	2 Nos.
21.	File flat bastard	200 mm	2 Nos.	File flat bastard	200 mm	2 Nos.
22.	File flat second cut	200 mm	2 Nos.	File flat second cut	200 mm	2 Nos.
23.	File flat smooth	200 mm	2Nos.	File flat smooth	200 mm	2Nos.
24.	Plier - Flat Nose	150 mm	4 Nos.	Plier - Flat Nose	150 mm	4 Nos.
25.	Round Nose pliers	100 mm	4 Nos.	Round Nose pliers	100 mm	4 Nos.
26.	Scriber straight	150 mm	2 Nos.	Scriber straight	150 mm	2 Nos.
27.	Hammer ball pen	500 grams	1 No.	Hammer ball pen	500 grams	1 No.
28.	Allen key set (Hexagonal -set of 9)	1 - 12 mm, set of 24 Keys	1 No.	Allen key set (Hexagonal -set of 9)	1 - 12 mm, set of 24 Keys	1 No.
29.	Tubular box spanner	Set - 6 - 32 mm	1 set.	Tubular box spanner	Set - 6 - 32 mm	1 set.
30.	Magnifying lenses	75 mm	2 Nos.	Magnifying lenses	75 mm	2 Nos.
31.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.
32.	Hacksaw frame adjustable	300 mm	2 Nos.	Hacksaw frame adjustable	300 mm	2 Nos.
33.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.
34.	Scissors	200mm	1 No.	Scissors	200mm	1 No.
35.	Handsaw 450mm	Hand Saw - 450 mm	1 No.	Handsaw 450mm	Hand Saw - 450 mm	1 No.

36.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.
37.	First aid kit		1 No.	First aid kit		1 No.
38.	Bench Vice	Bench Vice - 125 mm	1 No. each	Bench Vice	Bench Vice - 125 mm	1 No. each
		Bench Vice - 100 mm			Bench Vice - 100 mm	
		Bench Vice - 50 mm			Bench Vice - 50 mm	
39.				Wire stripper		12 Nos.
List of Equipment						
40.	Multiple Output DC regulated power supply	0-30V, 2 Amps, \pm 15V Dual Tracking ,5V/5A, Display digital, Load & Line Regulation: \pm (0.05 %+100 mV), Ripple & Noise: 1 mVrms. Constant Voltage & Current operation	4 Nos.	Multiple Output DC regulated power supply	0-30V, 2 Amps, \pm 15V Dual Tracking,5V/5A, Display digital,	4 Nos.
41.	DC Regulated Variable Programmable DC Power Supply	0-30V/3A with numeric keypad, PC interface and LCD for Voltage, Current & Power	2 Nos.	Regulated Variable DC Power Supply	0-30V/3A with seven segment LED display	2 Nos.
42.	LCR meter (Digital) Handheld	It can Measure six basic parameters R,C,L equipped with SMD Component Test Fixture	1 No.	LCR meter (Digital) Handheld		1 No.
43.	70 MHz Mixed Signal Oscilloscope (4 Analog + 16 Digital Channel)	With more than 20Mpt memory Real time Sampling 1GSa/sec , having LAN Interface with, I2C , SPI, Runt etc .. And RS232/UART, I2C and SPI trigger decoding functions , two channel 25MHz awg plus math functions like differentiation, integration, abs, AND,OR,NOT etc.	1 No.	Digital Storage Oscilloscope	30 MHz	1 No.
44.	25 MHz Arbitrary Waveform Generator with Digital Display for Frequency and Amplitude	Two Channel, 200MSa/Sec and 2Mpt memory with more than 150 different arbitrary waveforms and built-in 8 th order harmonic generation and 150MHz Frequency counter PC Connectivity USB Device/Host and LAN	1 No.	Multi Waveform Signal Generators	10 MHz	4 No.
45.	6 1/2 Digit Digital Multimeter	Measurement Functions: DC & AC Voltage, DC&AC Current, 2-wire & 4-wire Resistance, CAP, Diode, Connectivity, Frequency, Period, Any Sensor.	1 No.			

		Temperature: RTD, THERM,TC (B/E/J/K/N/R/S/T) PC Interface USB Host, USB Device, LAN(LXI-C) Measurement Speed 10k readings/sec				
46.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz Built in tracking generator Min. -148 dBm DANL Display 8" TFT or more PC Interface: USB Host & Device, LAN(LXI)	1 No.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz	1 No.
47.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Spectrum Analyzer. Arbitrary Waveform Generator Sine 50MHz ,Square 15MHz, Triangle 100KHz , AM –FM Modulation, 16 Channel Logic Analyzer Frequency and Phase Meter USB 2.0/ 3.0 Interface	1 No.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Arbitrary Waveform Generator Sine, Square, Triangle, AM –FM Modulation,	1 No.
48.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1 No.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1 No.
49.	Analog Component Trainer with following Seven Basic Modules • Diode Characteristics (Si,Zener,LED) • Rectifier Circuits • Diode as Clipper Circuit	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed); ±12V, 500mA (Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle (1Hz to 100KHz) Modulating Signal Generator: Sine, Square, Triangle (1Hz to 10KHz). Voltage, current and frequency on board LCD display.	1 No.	Analog Component Trainer with following Seven Basic Modules • Diode Characteristics (Si,Zener,L)	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed); ±12V, 500mA (Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle	1 No.

	<ul style="list-style-type: none"> • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics • Transistor as a switch 	PC Interface – Acquisition from two analog input Simulation Software		<ul style="list-style-type: none"> ED) • Rectifier Circuits • Diode as Clipper Circuit • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics <p>Transistor as a switch</p>	Modulating Signal Generator: Sine, Square, Triangle	
50.	Digital IC Trainer	Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: (TTL), 128x64 Graphical LCD, Pulser Switches, Data Switches: 8 Nos, LED: 8 Nos. (TTL), Seven Segment Display, Teaching & Learning Simulation Software	1 No.	Digital IC Trainer	Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: Seven Segment Display, Teaching & Learning Simulation Software	1 No.
51.	IT Workbench for computer hardware and networking	The bench comprises with Computer Hardware Training System (02 Nos.) The different circuit boards of PC/AT Computer are exposed on a PCB, LAN Training System with Wireless LAN as well to study Peer to Peer, STAR, RING Topology. Protocols: CSMA /CD, CSMA /CA, Stop N Wait, Go back to N, Selective	1 No.	IT Workbench for computer hardware and networking	As per Requirement	1 No.

		repeat, Sliding Window, Token Bus, Token Ring, Colored representation of data in transmission & reception. Data transmission speed: 10/100 Mbps, Smart managed 3 Layer and 2 Layer Switch, Media converter, POE Switch, Wi-Fi LAN card, IP Camera, Energy meter, LED tube light, Voltmeter and Ammeter will be fitted. Networking Fundamentals Teaching Simulation Software DSO 50MHz 4 Channel , 1GSa/Sec ,more than 20 Mpt memory DSO DMM : 4 ^{1/2} Digit with LCD Display				
52.	Laptop latest configuration		1 No.	Laptop latest configuration		1 No.
53.				Desktop computer	Latest configuration	24+1 No.
54.				UPS	5 KVA	As required
55.	Laser jet Printer		1 No.	Laser jet Printer		1 No.
56.	Internet Broadband Connection		1 No.	Internet Broadband Connection		1 No.
57.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.
58.	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required
59.	Different types of Analog electronic components, digital ICs, power electronic components, general		As required	Different types of Analog electronic components, digital ICs, power electronic		As required

	purpose PCBs, bread board, MCB, ELCB			components, general purpose PCBs, bread board, MCB, ELCB		
60.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts I/P Voltage : 170 to 270 V De-soldering : 70 Watt Temperature Range : 180 to 480° Centigrade Power Consumption : 270 Watts Hot Air Temperature : 200 to 550° Centigrade	1 No.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts De-soldering : 70 Watt Power Consumption : 270 Watts Hot Air Temperature : 200 to 550° Centigrade	1 No.
61.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.
62.	Microcontroller kits (8051) along with programming software (Assembly level Programming) With six important different application modules 1. Input Interface Switch, Matrix Keypad, ASCII Keypad	Core 8051 MCU clocked at 11.0592 MHz., supporting both programming modes Keypad and computer ,LCD for both programming and run mode, ready to run programmer to support family of controllers AT89C52 ,DC Power Supplies +12V, -12V, +5V & -5V, Breadboard to make circuits, Learning content through simulation Software and following application modules 1. Input Interface : 4x4 Matrix Keypad, ASCII Key PAD, Four Input Switch	1 No.	Arduino and Raspberry-pi based IoT system with cloud access, accessories, analog and digital ports, support for stepper motor, servo motors, UART port for serial data communication	Arduino, Raspberry-pi and RP 2040 based IoT system with all accessories sensors and cloud access minimum 10 sensors	1 No. 12 Nos.

	2. Display LCD, Seven Segment, LED Matrix 3. ADC & DAC 4. PC Interface module 5. Motor DC, Stepper, Servo 6. DAQ	2. Display 16X2 LCD, Seven Segment, LED Bar Graph 3. ADC/DAC with ADC/DAC0808 4. PC Interface: RS232 & USB 5. Motor Drive: DC, Servo, Stepper 6. DAQ: 4ch analog 10bit, 22 DIO resolution, 6MHz Frequency Counter (square wave), DAQ with PC interface software		and separate port for I2C		
63.	Sensor Trainer Kit Containing following Sensors a) Air humidity and Temperature b) RTD c) Atmospheric Pressure d) Air Quality e) Smoke Detector Sensors f) Limit Switch g) Photo sensors h) Capacitive displacement	IoT enabled Android based 7" Graphical touch LCD with inbuilt cortex processor &DAQ for acquiring analog data and software for viewing the output waveforms with USB storage and HDMI output. Ethernet port to connect real world. Inverting, Non - Inverting, Power, Current, Instrumentation and Differential Amplifier, F to V, V to F, I to V, V to I Converter, High Pass and Low Pass Filter, Buffer, LED, Buzzer, LED Bar Graph, Touch Switch Included Sensors:RTD,NTC Thermistor,LM35,Photovoltaic, Air humidity and Temperature, Gas(Smoke), Air Quality,Atmospheric Pressure, Limit switch, Capacitive displacement	2 Nos.	Sensor Trainer kit with sensor pack Containing following Sensors i) Air humidity and Temperature j) RTD k) Atmospheric Pressure l) Air Quality m) Smoke Detector Sensors n) Limit Switch o) Photo sensors Capacitive displacement	Interfacing all listed sensors and test their working status	12 Nos.
64.	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required
65.	Different Microcontroller/Proc	MCU PIC16F877A , 4MHz, Onboard programmer will program PIC	1 No.			

	<p>essor Training and Development Platform for AVR, PIC, ARM and Arduino.</p> <p>Devices, USB Port MCU ATMEGA8515 ,8MHz, onboard programmer will program ATMEGA series microcontroller, USB Port MCU LPC2148 , 12MHz,LED 8Nos, ADC 10 bit 10Nos, DAC 10bit ,USB and RS232, RTOS support, JTAG Connector, USB2.0,Onboard Zigbee, I2C,SPI,RTC,DC motor, PWM, Sensor LM35 , Display 16X2 LCD Display , Motor Drive: L293D 600mA (5-12V),Programmer USB Interface. Microcontroller ATmega328p (Arduino Based), 16MHz, Digital I/O Pins : 14 (of which 6 provide PWM output) , Flash Memory : 16KB (of which 2KB used by boot loader) Each platform should have Bread DC Power Supplies +12V, -12V, +5V & - 5V, Breadboard to make circuits.</p>			
66.	<p>Internet of Things Explorer</p> <p>Processor: 64bit ARMv7 with 1GB RAM, Memory 32GB, OS: Opensource Linux, Connectivity: Wireless LAN, Bluetooth, Zigbee, USB & Ethernet, HDMI interface, 1.77" Color TFT LCD, Driver for Stepper and DC Motor, six 16 bit Analog Input, RTC and 4-20mA input. Zigbee: 2.4GHz, Sensors: Temperature and Humidity, Air Quality, Soil Moisture, Ambient Light, Soil/Water temperature, PIR Sensor. GSM IoT Gateway - Quad-Band 850/900/1800/1900 MHz - GPRS multi-slot class, Control via AT commands. Explore physical and application layer protocols like RS232, RS485, GSM, Ethernet and MQTT, CoAP, HTTP, FTP. Cloud/server configuration includes HTML, Java, php and mySQL. IoT Node: Wireless 2.4GHz Zigbee, 5 Analog Inputs</p>	1 No.	<p>Internet of Things Explorer</p> <p>System with attached and database modules for sensors, controllers, gateway and application control facility</p>	1 No.

		and at least 3 Digital Outputs, At least one I2C Channel, support OTA. Online Cloud/Server Services for 2 years. Battery 3.7V/4400mAH with Solar Panel, USB interface.				
67.	Field Interface and Protocol Simulation Kit	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <ol style="list-style-type: none"> 1. Ethernet Devices with Isolated Supply and port <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO (0-10VDC), Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 2. 16 Port Ethernet Switch for networking of field ethernet devices 3. SMPS to power up multiple ethernet based field simulation devices 4. Required Connectors, Switches and LED indicators for Field Interface circuits such as Digital Inputs, Relay Outputs, Analog Inputs, Analog Outputs, Pulse Signals 5. Software <ul style="list-style-type: none"> ▪ Communication with simulation device on ethernet MODBUS TCP Protocol ▪ Field Interface simulation using HMI replica of Console for easy understanding of students ▪ Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP 	1 No.	<p>Field Interface and Protocol Simulation Kit</p>	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <ol style="list-style-type: none"> 6. Ethernet Devices with Isolated Supply and port <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO, Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 7. 16 Port Ethernet Switch for networking of field ethernet devices 8. SMPS to power up multiple ethernet based field simulation devices 9. Required Connectors, Switches and LED indicators for Field Interface circuits such as Digital Inputs, Relay Outputs, Analog Inputs, Analog Outputs, Pulse Signals 10. Software <ul style="list-style-type: none"> ▪ Communication with simulation device on 	12 Nos.

		<ul style="list-style-type: none"> Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, DLMS Client IoT Protocol Simulations – MQTT topic publish subscribe simulation 			<ul style="list-style-type: none"> ethernet MODBUS TCP Protocol Field Interface simulation using HMI replica of Console for easy understanding of students Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, 	
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LIST OF THE MACHINERIES

68.	Solar Power Lab	<p>Solar PV Modules. Open Circuit Voltage Voc 10V, Short Circuit Current Isc.60m A Maximum Power Voltage (Vmp) 8.80V, Maximum Power Current (Imp): 0.57A, Batteries, Voltage 6V, 4Ah. Buck & Boost Converter, Dusk to Dawn Sensing, LCD for Voltage and Current. Interactive Solar Training Software</p>	1 No.	Solar Power Lab	<p>Solar PV Modules. Open Circuit Voltage Voc 10V, Short Circuit Current Isc.60m A Maximum Power Voltage (Vmp) 8.80V, Maximum Power Current (Imp): 0.57A, Batteries, Voltage 6V, 4Ah. Buck & Boost Converter, Dusk to Dawn Sensing, LCD for Voltage and Current. Interactive Solar Training Software</p>	12 Nos.
69.	Solar PV Module Analyzer	<p>Micro-controller Based with 16X2 LCD, PC Interface, mains & battery operated. Capable to measure Open Circuit Voltage and Short Circuit Current, Maximum Voltage and Current at Maximum Power DCV Range 0-50V, DCA Range 10A</p>	1 No.	Solar PV Module Analyzer	<p>Micro-controller Based with 16X2 LCD, PC Interface, mains & battery operated. Capable to measure Open Circuit Voltage and Short Circuit Current, Maximum Voltage and Current at Maximum Power DCV Range 0-50V, DCA Range 10A</p>	12 Nos.
70.	Wireless Communication modules for	<p>Core 8051 MCU clocked at 11.0592 MHz, supporting both programming modes Key Pad and PC ,LCD for both programming</p>	1 No.	Wireless Communication modules for	<p>programmable controller supporting both programming modes Key Pad and PC ,LCD for</p>	12 Nos.

	interfacing with microcontrollers a) RFID Card Reader b) Finger Print c) Zigbee d) GPS e) GSM f) Bluetooth g) WiFi	mode and run mode, ready to run programmer to support family of controllers AT89C51/52 & 55 ,DC Power Supplies +12V, -12V, +5V & -5V,Breadboard to make circuits, detailed learning content through simulation Software and following application modules : RFID Card Reader ,Finger Print, Zigbee, GPS, GSM, Bluetooth and WiFi		interfacing with microcontrollers a) RFID Card Reader b) Finger Print c) GPS d) GSM e) Bluetooth f) WiFi	both programming mode and run mode, ready to run programmer to support family of controllers Breadboard to make circuits, detailed learning content through simulation Software and following application modules: RFID Card Reader,Finger Print, GPS, GSM, Bluetooth and WiFi	
71.	Sensors for Smart Environment Application	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: CO2: Range: (0-2000ppm), O2 Range: (0-25%), Air Temperature & Humidity, Atmospheric Pressure, PM2.5 and PM10(UART and PWM output), Solar Radiation, UV Index, All Sensors should in IP65 Packing	1 No.			
72.	Sensors for Smart Parking	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: CCTV Camera, Motion Sensor, RFID, Relays, Hooter, Magnetic Hall Sensor, Ultrasonic, Application Software for SMART Dashboard	1 No.	Sensors for Smart Parking	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: CCTV Camera , Motion Sensor, RFID, Relays, Hooter, Magnetic Hall Sensor, Ultrasonic, Application Software for SMART Dashboard	12 Nos.
73.	Sensors for Smart Water & Waste water Management & Monitoring	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Conductivity Sensor, PH Sensor Cupric (Cu ²⁺), Silver (Ag ⁺), Lithium (Li ⁺) with 10, 100 and 1000 ppm solution calibration kit. Level Sensor, Flow Sensor, Ultrasonic Sensor & Temperature.	1 No.	Sensors for Smart Water & Waste water Management & Monitoring	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Conductivity Sensor, PH Sensor Cupric (Cu ²⁺), Silver (Ag ⁺), Lithium (Li ⁺) with 10, 100 and 1000 ppm solution calibration kit. Level Sensor, Flow Sensor,	12 Nos.

					Ultrasonic Sensor & Temperature.	
74.	Weather Monitoring System	Temperature Range : -10°C to 90°C, Relative Humidity Operating Range 0 to 95% ,Wind Speed Sensor Speed : 0 to 20m/S Resolution 1m/S ,Wind Direction, Rainfall Bucket collector, Solar Radiation, UV Index, Atmospheric Pressure, Air Quality PM2.5, GSM based cloud connectivity, Application Software for Dashboard for remote monitoring and analysis. Power Supply Battery: 12V/42AH Solar Panel: 100W	1 No.	Weather Monitoring System	Temperature Range : -10°C to 90°C, Relative Humidity Operating Range 0 to 95% ,Wind Speed Sensor Speed : 0 to 20m/S Resolution 1m/S ,Wind Direction, Rainfall Bucket collector, Solar Radiation, UV Index, Atmospheric Pressure, Air Quality PM2.5, GSM based cloud connectivity, Application Software for Dashboard for remote monitoring and analysis. Solar panel for 240 W	12 Nos.
75.	Smart Solar Street Lighting Training Platform	Microcontroller based Wireless connectivity using WiFi TFT LCD Display to display various parameters Connectivity: USB (04 nos.) The system should come with following Sensors Temperature, Humidity, Air Quality, PIR, and Auto diming Solar Panel: 40 W (01no), Polycrystalline type, Battery: SMF type for rating 12V, 26Ah (01 no) Charge Controller: PWM type LED Light: 10 Watt (01no) Application Software for SMART Street Light Dashboard	1 No.	Smart Solar Street Lighting Training Platform	Microcontroller based Wireless connectivity using WiFi The system should come with following Sensors Temperature, Humidity, Air Quality, PIR, and Auto diming Street light 10W	12 Nos.
76.	IoT based Smart Streetlight System	1. IoT based Smart Streetlight Controller with Three Phase 415 VAC input, Single RS485 Communication Port, 4 Digital Inputs for Door sensors as well as contactor feedback, 3 Relay outputs for switching of streetlight circuits, Local Ethernet connectivity, SD Card Storage, Remote GSM/GPRS	1 No.	IoT based Smart Streetlight System	1. IoT based Smart Streetlight Controller with Three Phase 415 VAC input, Single RS485 Communication Port, 4 Digital Inputs for Door sensors as well as contactor feedback, 3 Relay outputs for switching of	12 Nos.

		<p>connectivity using Quad Band GSM/GPRS Module</p> <ol style="list-style-type: none"> 2. Overvoltage protection 3. Over current protection 4. Three phase MODBUS energy meter with class 1.0 accuracy and IS13779 certification 5. SMC box with IP65 and IK10 ratings <p>Responsive Web application for Smart streetlight management system having with map view based dash board and individual system details</p>			<p>streetlight circuits, Local Ethernet connectivity, SD Card Storage, Remote GSM/GPRS connectivity using Quad Band GSM/GPRS Module</p> <ol style="list-style-type: none"> 2. Overvoltage protection 3. Over current protection 4. Three phase MODBUS energy meter with class 1.0 accuracy and IS13779 certification 5. SMC box with IP65 and IK10 ratings <p>Responsive Web application for Smart streetlight management system having with map view based dash board and individual system details</p>	
77.	Smart Transportation Monitoring System	<p>Processor: 32 Bit, Modem: Quad-Band 850/900/1800/1900MHz</p> <p>GPS Frequency: 1575.45 MHZ</p> <p>Built in Sensors: Temperature, humidity, Accelerometer, Speed tracker</p> <p>Input Supply: 12V DC</p> <p>software Front End: Zend Framework 1.12.1/php Back End: mySQL OS: Windows and Linux Compatible</p>	1 No.	Smart Transportation Monitoring System	<p>Processor: 32 Bit, Modem: Quad-Band 850/900/1800/1900MHz</p> <p>GPS Frequency: 1575.45 MHZ</p> <p>Built in Sensors: Temperature, humidity, Accelerometer, Speed tracker</p>	12 Nos.
78.	Sensors for Smart Building	<p>All should be compatible with Sensor Training Platform & IOT Explorer mentioned above:</p> <p>CCTV Camera, Motion Sensor</p> <p>RFID, Smoke, Fire, LPG Gas, Air Quality, Ambient Temperature & Humidity, CO₂, Light, Relays, Hooter, Touch Panel</p>	1 No.	Sensors for Smart Building	<p>All should be compatible with Sensor Training Platform & IOT Explorer mentioned above:</p> <p>CCTV Camera, Motion Sensor</p> <p>RFID, Smoke, Fire, LPG Gas, Air Quality, Ambient Temperature &</p>	12 Nos.

		Smart Capacitive Touch Switch Board with 3 Light controls, 1 humming free FAN control, 1 16A AC control, 3 IR Channels for controlling IR appliances, 8 Capacitive Touch Buttons, 2 Digital Sensor Inputs, 1 Digital Output Application Software for SMART Building Dashboard			Humidity, CO ₂ , Light, Relays, Hooter, Touch Panel	
79.	IoT Data Acquisition Systems & Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon) 24 VDC Isolated Supply, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ, WiFi IoT DAQ, Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet, Serial to Wi-Fi, Serial to GPRS	1 set	IoT Data Acquisition Systems & Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon) 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ, WiFi IoT DAQ, Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet, Serial to Wi-Fi, Serial to GPRS	12 Nos.
80.	IoT EDGE Computing Device	Embedded SCADA for 500 Tags, 24 VDC Isolated Power Supply, 4 MODBUS RTU Master, 32 GB Built in SD Card, 1 Wi-Fi Port, 1 Ethernet Port, 1 GPRS Port, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs	1 No.	IoT EDGE Computing Device	Embedded SCADA for 50 Tags,	1 No.
81.	Cloud Based IoT SCADA	1000 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.	Cloud Based IoT SCADA	100 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.

D. Shop Floor Furniture and Materials - For 2 (1+1) units no additional items are required.

82.	Instructor's table		1 No.	Instructor's table		1 No.
83.	Instructor's chair		2 Nos.	Instructor's chair		2 Nos.

Agenda for the 34th Meeting of NSQC dated 30th November 2023

84.	Metal Rack	100cm x 150cm x 45cm	4 Nos.	Metal Rack	100cm x 150cm x 45cm	4 Nos.
85.	Lockers with 16 drawers standard size		2 Nos.	Lockers with 16 drawers standard size		2 Nos.
86.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.
87.	Interactive Smart Board with Projector		1 No.	Interactive Smart Board with Projector		1 No.
88.	Fire Extinguisher		2 Nos.	Fire Extinguisher	Arrange all proper NOCs and equipments from Municipal/Competent authorities.	2 Nos.
89.	Fire Buckets		2 Nos.	Fire Buckets		2 Nos.
90.				Computer Table		24+1 Nos.
91.				Computer Chair		24+1 Nos.

Note: Internet facility is desired to be provided in the class room.

B. COMPARATIVE LIST OF TOOLS & EQUIPMENT

IoT TECHNICIAN (SMART HEALTHCARE) (For batch of 24 candidates)

Existing				Modified		
Sl. No.	Name of the Tools and Equipment	Specification	Quantity	Name of the Tools and Equipment	Specification	Quantity
TRAIINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-12 is required additionally)						
92.	Connecting screwdriver	10 X 100 mm	12 Nos.	Connecting screwdriver	10 X 100 mm	12 Nos.
93.	Neon tester 500 V.	500 V	8 Nos.	Neon tester 500 V.	500 V	8 Nos.
94.	Screwdriver set	Set of 7	12 Nos.	Screwdriver set	Set of 7	12 Nos.
95.	Insulated combination pliers	150 mm	8 Nos.	Insulated combination pliers	150 mm	8 Nos.
96.	Insulated side cutting pliers	150mm	8 Nos.	Insulated side cutting pliers	150mm	8 Nos.
97.	Long nose pliers	150mm	8 Nos.	Long nose pliers	150mm	8 Nos.
98.	Soldering iron	25 Watt, 240 Volt	12 Nos.	Soldering iron	25 Watt, 240 Volt	12 Nos.
99.	Electrician knife	100 mm	8 Nos.	Electrician knife	100 mm	8 Nos.
100.	Tweezers	150 mm	12 Nos.	Tweezers	150 mm	12 Nos.
101.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12 Nos.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12 Nos.
102.	Soldering Iron Changeable bits	15 Watt, 240 Volt	8 Nos.	Soldering Iron Changeable bits	15 Watt, 240 Volt	8 Nos.
103.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.

B. SHOP TOOLS, INSTRUMENTS – For 2 (1+1) units no additional items are required

Lists of Tools:

104.	Steel rule graduated both in Metric and English Unit	300 mm,	4 Nos.	Steel rule graduated both in Metric and English Unit	300 mm,	4 Nos.
105.	Precision set of screw drivers	T5, T6, T7	2 Nos.	Precision set of screw drivers	T5, T6, T7	2 Nos.
106.	Tweezers – Bend tip		2 Nos.	Tweezers – Bend tip		2 Nos.
107.	Steel measuring tape	3 meters	4 Nos.	Steel measuring tape	3 meters	4 Nos.
108.	Tools makers vice	100mm (clamp)	1 No.	Tools makers vice	100mm (clamp)	1 No.

109.	Tools maker vice	50mm (clamp)	1 No.	Tools maker vice	50mm (clamp)	1 No.
110.	Crimping tool (pliers)	7 in 1	2 Nos.	Crimping tool (pliers)	7 in 1	2 Nos.
111.	Magneto spanner set	8 Spanners	2 Nos.	Magneto spanner set	8 Spanners	2 Nos.
112.	File flat bastard	200 mm	2 Nos.	File flat bastard	200 mm	2 Nos.
113.	File flat second cut	200 mm	2 Nos.	File flat second cut	200 mm	2 Nos.
114.	File flat smooth	200 mm	2Nos.	File flat smooth	200 mm	2Nos.
115.	Plier - Flat Nose	150 mm	4 Nos.	Plier - Flat Nose	150 mm	4 Nos.
116.	Round Nose pliers	100 mm	4 Nos.	Round Nose pliers	100 mm	4 Nos.
117.	Scriber straight	150 mm	2 Nos.	Scriber straight	150 mm	2 Nos.
118.	Hammer ball pen	500 grams	1 No.	Hammer ball pen	500 grams	1 No.
119.	Allen key set (Hexagonal set of 9)	1 - 12 mm, set of 24 Keys	1 No.	Allen key set (Hexagonal set of 9)	1 - 12 mm, set of 24 Keys	1 No.
120.	Tubular box spanner	Set - 6 - 32 mm	1 set.	Tubular box spanner	Set - 6 - 32 mm	1 set.
121.	Magnifying lenses	75 mm	2 Nos.	Magnifying lenses	75 mm	2 Nos.
122.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.
123.	Hacksaw frame adjustable	300 mm	2 Nos.	Hacksaw frame adjustable	300 mm	2 Nos.
124.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.
125.	Scissors	200mm	1 No.	Scissors	200mm	1 No.
126.	Handsaw 450mm	Hand Saw - 450 mm	1 No.	Handsaw 450mm	Hand Saw - 450 mm	1 No.
127.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.
128.	First aid kit		1 No.	First aid kit		1 No.
129.	Bench Vice	Bench Vice - 125 mm	1 No. each	Bench Vice	Bench Vice - 125 mm	1 No. each
		Bench Vice - 100 mm			Bench Vice - 100 mm	
		Bench Vice - 50 mm			Bench Vice - 50 mm	
130.				Wire stripper		12 Nos.

List of Equipment

131.	Multiple Output DC regulated power supply	0-30V, 2 Amps, ± 15V Dual Tracking, 5V/5A, Display digital, Load & Line Regulation: ± (0.05 %+100 mV), Ripple & Noise: 1 mVrms. Constant Voltage &	4 Nos.	Multiple Output DC regulated power supply	0-30V, 2 Amps, ± 15V Dual Tracking, 5V/5A, Display digital	4 Nos.
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		Current operation				
132.	DC Regulated Variable Programmable DC Power Supply	0-30V/3A with numeric keypad, PC interface and LCD for Voltage, Current & Power	2 Nos.	Regulated Variable DC Power Supply	0-30V/3A with seven segment LED display	2 Nos.
133.	LCR meter (Digital) Handheld	It can Measure six basic parameters R,C,L equipped with SMD Component Test Fixture	1 No.	LCR meter (Digital) Handheld		1 No.
134.	70 MHz Mixed Signal Oscilloscope (4 Analog + 16 Digital Channel)	With more than 20Mpt memory Real time Sampling 1GSa/sec , having LAN Interface with, I2C , SPI, Runt etc .. And RS232/UART, I2C and SPI trigger decoding functions, two channel 25MHz awg plus math functions like differentiation, integration, abs, AND,OR,NOT etc.	1 No.	Digital Storage Oscilloscope	30 MHz	1 No.
135.	25 MHz Arbitrary Waveform Generator with Digital Display for Frequency and Amplitude	Two Channel, 200MSa/Sec and 2Mpt memory with more than 150 different arbitrary waveforms and built-in 8 th order harmonic generation and 150MHz Frequency counter PC Connectivity USB Device/Host and LAN	1 No.	Multi Waveform Signal Generators	10 MHz	4 No.
136.	6 1/2 Digit Digital Multimeter	Measurement Functions: DC &AC Voltage, DC&AC Current, 2-wire & 4-wire Resistance, CAP, Diode, Connectivity, Frequency, Period, Any Sensor. Temperature: RTD, THERM,TC (B/E/J/K/N/R/S/T) PC Interface USB Host, USB	1 No.			

		Device, LAN(LXI-C) Measurement Speed 10k readings/sec				
137.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz Built in tracking generator Min. -148 dBm DANL Display 8" TFT or more PC Interface: USB Host & Device, LAN(LXI)	1 No.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz	1 No.
138.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Spectrum Analyzer. Arbitrary Waveform Generator Sine 50MHz ,Square 15MHz,Triangle 100KHz , AM –FM Modulation, 16 Channel Logic Analyzer Frequency and Phase Meter USB 2.0/ 3.0 Interface	1No.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Arbitrary Waveform Generator Sine, Square, Triangle , AM –FM Modulation,	1No.
139.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1No.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1No.
140.	Analog Component Trainer with following Seven	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed);	1 No.	Analog Component Trainer with following Seven Basic Modules	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed); ±12V, 500mA	1 No.

	<p>Basic Modules</p> <ul style="list-style-type: none"> • Diode Characteristics (Si,Zener,LED) • Rectifier Circuits • Diode as Clipper Circuit • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics • Transistor as a switch 	<p>±12V, 500mA (Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle (1Hz to 100KHz) Modulating Signal Generator: Sine, Square, Triangle (1Hz to 10KHz). Voltage, current and frequency on board LCD display. PC Interface – Acquisition from two analog input channel Simulation Software</p>		<ul style="list-style-type: none"> • Diode Characteristics (Si,Zener,LED) • Rectifier Circuits • Diode as Clipper Circuit • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics <p>Transistor as a switch</p>	<p>(Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle Modulating Signal Generator: Sine, Square, Triangle</p>	
141.	Digital IC Trainer	<p>Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: (TTL), 128x64 Graphical LCD, Pulser Switches, Data Switches: 8 Nos, LED: 8 Nos. (TTL), Seven Segment Display, Teaching & Learning Simulation Software</p>	1 No.	Digital IC Trainer	<p>Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: Seven Segment Display, Teaching & Learning Simulation Software</p>	1 No.
142.	IT Workbench for computer hardware and networking	<p>The bench comprises with Computer Hardware Training System (02 Nos.) The different circuit boards of PC/AT Computer are exposed on a PCB, LAN Training System with Wireless LAN as well to study Peer to Peer,</p>	1 No.	IT Workbench for computer hardware and networking	As per Requirement	1 No.

		STAR, RING Topology. Protocols: CSMA /CD, CSMA /CA, Stop N Wait, Go back to N, Selective repeat, Sliding Window, Token Bus, Token Ring, Colored representation of data in transmission & reception. Data transmission speed: 10/100 Mbps, Smart managed 3 Layer and 2 Layer Switch, Media converter, POE Switch, Wi-Fi LAN card, IP Camera, Energy meter, LED tube light, Voltmeter and Ammeter will be fitted. Networking Fundamentals Teaching Simulation Software DSO 50MHz 4 Channel , 1GSa/Sec ,more than 20 Mpt memory DSO DMM : 4 ^{1/2} Digit with LCD Display				
143.	Laptop latest configuration		1 No.	Laptop latest configuration		1 No.
144.				Desktop computer	Latest configuration	24+1 No.
145.				UPS	5 KVA	As required
146.	Laser jet Printer		1 No.	Laser jet Printer		1 No.
147.	Internet Broadband Connection		1 No.	Internet Broadband Connection		1 No.
148.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.
149.	Different types of		As	Different types of electronic		As

	electronic and electrical cables, connectors, sockets, terminations.	required	and electrical cables, connectors, sockets, terminations.		required	
150.	Different types of Analog electronic components, digital ICs, power electronic components, general purpose PCBs, bread board, MCB, ELCB	As required	Different types of Analog electronic components, digital ICs, power electronic components, general purpose PCBs, bread board, MCB, ELCB		As required	
151.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts I/P Voltage: 170 to 270 V De-soldering : 70 Watt Temperature Range : 180 to 480° Centigrade Power Consumption : 270 Watts Hot Air Temperature : 200 to 550° Centigrade	1 No.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts De-soldering : 70 Watt Power Consumption : 270 Watts Hot Air Temperature : 200 to 550° Centigrade	1 No.
152.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.
153.	Microcontroller kits (8051) along with programming software (Assembly level Programming)	Core 8051 MCU clocked at 11.0592 MHz., supporting both programming modes Keypad and computer ,LCD for both programming and run mode, ready to run	1 No.	Arduino and Raspberry-pi based IoT system with cloud access, accessories, analog and digital ports, support for stepper motor, servo motors,	Arduino, Raspberry-pi and RP 2040 based IoT system with all accessories sensors and cloud access minimum 10 sensors	2 Nos.

	With six important different application modules 7. Input Interface Switch, Matrix Keypad, ASCII Keypad 8. Display LCD, Seven Segment, LED Matrix 9. ADC & DAC 10. PC Interface module 11. Motor DC, Stepper, Servo 12. DAQ	programmer to support family of controllers AT89C52 ,DC Power Supplies +12V, -12V, +5V & -5V, Breadboard to make circuits, Learning content through simulation Software and following application modules 1. Input Interface : 4x4 Matrix Keypad, ASCII Key PAD, Four Input Switch 2. Display 16X2 LCD, Seven Segment, LED Bar Graph 3. ADC/DAC with ADC/DAC0808 4. PC Interface: RS232 & USB 5. Motor Drive: DC, Servo, Stepper 6. DAQ: 4ch analog 10bit, 22 DIO resolution,6MHz Frequency Counter (square wave), DAQ with PC interface software		UART port for serial data communication and separate port for I2C		
154.	Sensor Trainer Kit Containing following Sensors p) Air humidity and Temperature q) RTD r) Atmospheric Pressure s) Air Quality t) Smoke Detector Sensors u) Limit Switch v) Photo sensors	IoT enabled Android based 7" Graphical touch LCD with inbuilt cortex processor & DAQ for acquiring analog data and software for viewing the output waveforms with USB storage and HDMI output. Ethernet port to connect real world. Inverting, Non - Inverting, Power, Current, Instrumentation and Differential Amplifier, F to V, V to F, I to V, V to I Converter, High Pass and	2 Nos.	Sensor Trainer kit with sensor pack Containing following Sensors a) Air humidity and Temperature b) RTD c) Atmospheric Pressure d) Air Quality e) Smoke Detector Sensors f) Limit Switch g) Photo sensors h) Capacitive displacement	Interfacing all listed sensors and test their working status	2 Nos.

	w) Capacitive displacement	Low Pass Filter, Buffer, LED, Buzzer, LED Bar Graph, Touch Switch Included Sensors :RTD,NTC Thermistor,LM35,Photovoltaic, Air humidity and Temperature, Gas(Smoke), Air Quality, Atmospheric Pressure, Limit switch, Capacitive displacement				
155.	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required
156.	Different Microcontroller/Processor Training and Development Platform for AVR, PIC, ARM and Arduino.	MCU PIC16F877A , 4MHz, Onboard programmer will program PIC Devices, USB Port MCU ATMEGA8515 ,8MHz, onboard programmer will program ATMEGA series microcontroller, USB Port MCU LPC2148 , 12MHz,LED 8Nos, ADC 10 bit 10Nos, DAC 10bit ,USB and RS232, RTOS support, JTAG Connector, USB2.0,Onboard Zigbee, I2C,SPI,RTC,DC motor, PWM, Sensor LM35 , Display 16X2 LCD Display , Motor Drive: L293D 600mA (5-12V),Programmer USB Interface.	1 No.			

		<p>Microcontroller ATmega328p (Arduino Based), 16MHz, Digital I/O Pins : 14 (of which 6 provide PWM output) , Flash Memory : 16KB (of which 2KB used by boot loader)</p> <p>Each platform should have Bread DC Power Supplies +12V, -12V, +5V & - 5V, Breadboard to make circuits.</p>				
157.	Internet of Things Explorer	<p>Processor: 64bit ARMv7 with 1GB RAM, Memory 32GB, OS: Open source Linux, Connectivity: Wireless LAN, Bluetooth, Zigbee, USB & Ethernet, HDMI interface, 1.77" Color TFT LCD , Driver for Stepper and DC Motor, six 16 bit Analog Input, RTC and 4-20mA input. Zigbee: 2.4GHz, Sensors: Temperature and Humidity, Air Quality, Soil Moisture, Ambient Light, Soil/Water temperature, PIR Sensor. GSM IoT Gateway - Quad-Band 850/900/1800/1900 MHz - GPRS multi-slot class, Control via AT commands. Explore physical and application layer protocols like RS232, RS485, GSM, Ethernet and MQTT, CoAP, HTTP, FTP. Cloud/server configuration includes HTML,</p>	1 No.	<p>Internet of Things Explorer</p>	<p>System with attached and database modules for sensors, controllers, gateway and application control facility</p>	1 No.

		Java, php and mySQL. IoT Node: Wireless 2.4GHz Zigbee, 5 Analog Inputs and at least 3 Digital Outputs, At least one I2C Channel, support OTA. Online Cloud/Server Services for 2 years. Battery 3.7V/4400mAH with Solar Panel, USB interface.				
158.	Field Interface and Protocol Simulation Kit	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <p>11. Ethernet Devices with Isolated Supply and port</p> <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO (0-10VDC), Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 <p>12. 16 Port Ethernet Switch for networking of field ethernet devices</p> <p>13. SMPS to power up multiple ethernet based field simulation devices</p> <p>14. Required Connectors, Switches and LED</p>	1 No.	<p>Field Interface and Protocol Simulation Kit</p>	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <p>16. Ethernet Devices with Isolated Supply and port</p> <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 <p>17. 16 Port Ethernet Switch for networking of field ethernet devices</p> <p>18. SMPS to power up multiple ethernet based field simulation devices</p> <p>19. Required Connectors, Switches and LED indicators for Field Interface circuits such as Digital Inputs, Relay</p>	12 Nos.

	<p>indicators for Field Interface circuits such as Digital Inputs, Relay Outputs, Analog Inputs, Analog Outputs, Pulse Signals</p> <p>15. Software</p> <ul style="list-style-type: none"> ▪ Communication with simulation device on ethernet MODBUS TCP Protocol ▪ Field Interface simulation using HMI replica of Console for easy understanding of students ▪ Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP ▪ Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, DLMS Client <p>IoT Protocol Simulations – MQTT topic publish subscribe simulation</p>			<p>Outputs, Analog Inputs, Analog Outputs, Pulse Signals</p> <p>20. Software</p> <ul style="list-style-type: none"> ▪ Communication with simulation device on ethernet MODBUS TCP Protocol ▪ Field Interface simulation using HMI replica of Console for easy understanding of students ▪ Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP ▪ Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, 	
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LIST OF THE MACHINERIES

159.	<p>Wireless Communication modules for interfacing with microcontrollers</p> <p>h) RFID Card Reader</p> <p>i) Finger Print</p>	<p>Core 8051 MCU clocked at 11.0592 MHz, supporting both programming modes Key Pad and PC ,LCD for both programming mode and run</p>	1 No.	<p>Wireless Communication modules for interfacing with microcontrollers</p> <p>o) RFID Card Reader</p>	<p>programmable controller supporting both programming modes Key Pad and PC ,LCD for both programming mode and run mode, ready to run programmer to</p>	1 No.
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	j) Zigbee k) GPS l) GSM m) Bluetooth n) WiFi	mode, ready to run programmer to support family of controllers AT89C51/52 & 55 ,DC Power Supplies +12V, - 12V, +5V & - 5V,Breadboard to make circuits, detailed learning content through simulation Software and following application modules : RFID Card Reader ,Finger Print, Zigbee, GPS, GSM, Bluetooth and WiFi		p) Finger Print q) GPS r) GSM s) Bluetooth t) WiFi	support family of controllers Breadboard to make circuits, detailed learning content through simulation Software and following application modules: RFID Card Reader,Finger Print, GPS, GSM, Bluetooth and WiFi	
160.	Sensors for Biomedical Application	All should be compatible with Sensor Training Platform ECG Sensor, Heart Rate Sensor, GSR, Temperature	1 No.	Sensors for Biomedical Application	All should be compatible with Sensor Training Platform ECG Sensor, Heart Rate Sensor, GSR, Temperature	1 No.
161.	ECG cum Heart Rate Monitor	Heart Rate Display 16x2 LCD Display , Measuring Range 30-300 heartbeats per minute, Real time ECG acquisition with 200 samples/ sec 8-bit A/D	1 No.	ECG cum Heart Rate Monitor	Heart Rate Display 16x2 LCD Display , Measuring Range 30-300 heartbeats per minute, Real time ECG acquisition with 200 samples/ sec 8-bit A/D	1 No.
162.	12 Lead ECG Simulator	ECG Amplitude Range: 200mV- 4V DC, Support Bipolar leads Lead I, Lead II, Lead III , Unipolar Leads avR, avL, avF, Chest leads (V1-V6) Separate output channels Left arm (LA), Right arm (RA), Left leg (LL), Right leg (RL) and Chest Leads (V1-V6) Low pass Filter 5KHz Cutoff frequency	1 No.	12 Lead ECG Simulator	ECG Amplitude Range: 200mV- 4V DC, Support Bipolar leads Lead I, Lead II, Lead III , Unipolar Leads avR, avL, avF, Chest leads (V1-V6) Separate output channels Left arm (LA), Right arm (RA), Left leg (LL), Right leg (RL) and Chest Leads (V1-V6) Low pass Filter 5KHz Cutoff frequency	1 No.
163.	Respiration Rate Monitor	Respiration-Rate Display 16 x 2 LCD display, Piezo Electric Transducer, On board visual and audible Tachypnea and Apnea indicator, User selectable Apnea period control On board	1 No.	Respiration Rate Monitor	Respiration-Rate Display 16 x 2 LCD display, Piezo Electric Transducer, On board visual and audible Tachypnea and Apnea indicator, User selectable Apnea period control On board	1 No.

		Apnea period control On board Respiration event indicator			Respiration event indicator	
164.	Understanding of Electro-Myograph	Filter (Band Pass) 1 Hz – 10 KHz Notch Filter 50Hz, Normal EMG Excited EMG Raw EMG Filtered EMG, Surface Electrodes (Ag-AgCl)information about 10 simulated EMG outputs	1 No.	Understanding of Electro-Myograph	Filter (Band Pass) 1 Hz – 10 KHz Notch Filter 50Hz, Normal EMG Excited EMG Raw EMG Filtered EMG, Surface Electrodes (Ag-AgCl)information about 10 simulated EMG outputs	1 No.
165.	Patient Health Monitoring Development Platform	IoT Based Platform to measure 20 different biometric parameters and wireless sent using two connectivity options available: Wi-Fi or Bluetooth Low Energy 4.0. Data can be visualized in standalone color display mode and sent to the Cloud in order to perform permanent storage or visualize and storage in real time by sending the data directly to a iPhone and Android ApplicationsWith CE / FCC / IC Certifications Sensors Includes :SPO2 Sensor, ECG Sensor, Airflow Breathing, Blood Pressure, Glucometer, Spirometer, Body Temperature, EMG Sensor, Galvanic Skin Response, Body Position, Snore Sensor, etc.	1 No.	Patient Health Monitoring Development Platform	IoT Based Platform to measure 20 different biometric parameters and wireless sent using two connectivity options available: Wi-Fi or Bluetooth Low Energy 4.0. Data can be visualized in standalone color display mode and sent to the Cloud in order to perform permanent storage or visualize and storage in real time by sending the data directly to a iPhone and Android ApplicationsWith CE / FCC / IC Certifications Sensors Includes :SPO2 Sensor, ECG Sensor, Airflow Breathing, Blood Pressure, Glucometer, Spirometer, Body Temperature, EMG Sensor, Galvanic Skin Response, Body Position, Snore Sensor, etc.	1 No.
166.	Robots used in healthcare (optional)	MCU : ATMega128, 16MHz DC Power Supplies : +8.4V Charger Supply : 9V/1A Battery Power : 8.4V / 4400mAh	1 No.	Robots used in healthcare (optional)	MCU : ATMega128, 16MHz DC Power Supplies : +8.4V Charger Supply : 9V/1A Battery Power : 8.4V / 4400mAh 160x128 TFT Color LCD interface	1 No.

		160x128 TFT Color LCD interface RC servo motors consists of 5 degree of freedom (DOF)Base : 0 to 180 o Shoulder (1 and 2) : 0 to 180 o Elbow : 0 to 180 o Wrist : 0 to 180 o o Grip : 50 to 90			RC servo motors consists of 5 degree of freedom (DOF)Base : 0 to 180 o Shoulder (1 and 2) : 0 to 180 o Elbow : 0 to 180 o Wrist : 0 to 180 o o Grip : 50 to 90	
167.	Humanoid (optional)	Intelligent Robot Control test by 32bit Embedded System Biped Robot Basic Control, Controlling Operation of Intelligent Robot Optimized Robot motion program environment using ROBO Basic and ROBO Script, High-resolution CCD camera (Robot Vision) Real Time Image Processing and Monitoring, Total Pixels : 542(H) x 492(V) (270,000 pixels) Electronic Iris : PAL :1/50-1/100,000	1 No.	Humanoid (optional)	Intelligent Robot Control test by 32bit Embedded System Biped Robot Basic Control, Controlling Operation of Intelligent Robot Optimized Robot motion program environment using ROBO Basic and ROBO Script, High-resolution CCD camera (Robot Vision) Real Time Image Processing and Monitoring, Total Pixels : 542(H) x 492(V) (270,000 pixels) Electronic Iris : PAL :1/50-1/100,000	1 No.
168.	IoT Data Acquisition Systems & Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon) 24 VDC Isolated Supply, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ WiFi IoT DAQ Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet Serial to Wi-Fi	1 set	IoT Data Acquisition Systems & Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon) 24 VDC Isolated Supply, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ WiFi IoT DAQ Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet Serial to Wi-Fi Serial to GPRS	1 set

		Serial to GPRS				
169.	IoT EDGE Computing Device	Embedded SCADA for 500 Tags, 24 VDC Isolated Power Supply, 4 MODBUS RTU Master, 32 GB Built in SD Card, 1 Wi-Fi Port, 1 Ethernet Port, 1 GPRS Port, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs	1 No.	IoT EDGE Computing Device	Embedded SCADA for 500 Tags, 24 VDC Isolated Power Supply, 4 MODBUS RTU Master, 32 GB Built in SD Card, 1 Wi-Fi Port, 1 Ethernet Port, 1 GPRS Port, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs	1 No.
170.	Cloud Based IoT SCADA	1000 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.	Cloud Based IoT SCADA	1000 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.

D. Shop Floor Furniture and Materials - For 2 (1+1) units no additional items are required.

171.	Instructor's table		1 No.	Instructor's table		1 No.
172.	Instructor's chair		2 Nos.	Instructor's chair		2 Nos.
173.	Metal Rack	100cm x 150cm x 45cm	4 Nos.	Metal Rack	100cm x 150cm x 45cm	4 Nos.
174.	Lockers with 16 drawers standard size		2 Nos.	Lockers with 16 drawers standard size		2 Nos.
175.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.
176.	Interactive Smart Board with Projector		1 No.	Interactive Smart Board with Projector		1 No.
177.	Fire Extinguisher		2 Nos.	Fire Extinguisher	Arrange all proper NOCs and equipments from Municipal/Competent authorities.	2 Nos.
178.	Fire Buckets		2 Nos.	Fire Buckets		2 Nos.
179.				Computer Table		24+1 No.
180.				Computer Chair		24+1 No.

Note: Internet facility is desired to be provided in the class room.

C. COMPARATIVE LIST OF TOOLS & EQUIPMENT

IoT TECHNICIAN (SMART AGRICULTURE) (For batch of 24 candidates)

Existing				Modified		
Sl. No.	Name of the Tools and Equipment	Specification	Quantity	Name of the Tools and Equipment	Specification	Quantity
TRAIINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-12 is required additionally)						
181.	Connecting screwdriver	10 X 100 mm	12 Nos.	Connecting screwdriver	10 X 100 mm	12 Nos.
182.	Neon tester 500 V.	500 V	8 Nos.	Neon tester 500 V.	500 V	8 Nos.
183.	Screwdriver set	Set of 7	12 Nos.	Screwdriver set	Set of 7	12 Nos.
184.	Insulated combination pliers	150 mm	8 Nos.	Insulated combination pliers	150 mm	8 Nos.
185.	Insulated side cutting pliers	150mm	8 Nos.	Insulated side cutting pliers	150mm	8 Nos.
186.	Long nose pliers	150mm	8 Nos.	Long nose pliers	150mm	8 Nos.
187.	Soldering iron	25 Watt, 240 Volt	12 Nos.	Soldering iron	25 Watt, 240 Volt	12 Nos.
188.	Electrician knife	100 mm	8 Nos.	Electrician knife	100 mm	8 Nos.
189.	Tweezers	150 mm	12 Nos.	Tweezers	150 mm	12 Nos.
190.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12 Nos.	Digital Multimeter	(3 3/4 digit) ,4000 Counts	12 Nos.
191.	Soldering Iron Changeable bits	15 Watt, 240 Volt	8 Nos.	Soldering Iron Changeable bits	15 Watt, 240 Volt	8 Nos.
192.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.	De- soldering pump electrical heated, manual operators	230 V, 40 W	12 Nos.

B. SHOP TOOLS, INSTRUMENTS – For 2 (1+1) units no additional items are required

Lists of Tools:					
193.	Steel rule graduated both in Metric and English Unit	300 mm,	4 Nos.	Steel rule graduated both in Metric and English Unit	300 mm,
194.	Precision set of screw drivers	T5, T6, T7	2 Nos.	Precision set of screw drivers	T5, T6, T7
195.	Tweezers – Bend tip		2 Nos.	Tweezers – Bend tip	
196.	Steel measuring tape	3 meters	4 Nos.	Steel measuring tape	3 meters
197.	Tools makers vice	100mm (clamp)	1 No.	Tools makers vice	100mm (clamp)
198.	Tools maker vice	50mm (clamp)	1 No.	Tools maker vice	50mm (clamp)

199.	Crimping tool (pliers)	7 in 1	2 Nos.	Crimping tool (pliers)	7 in 1	2 Nos.
200.	Magneto spanner set	8 Spanners	2 Nos.	Magneto spanner set	8 Spanners	2 Nos.
201.	File flat bastard	200 mm	2 Nos.	File flat bastard	200 mm	2 Nos.
202.	File flat second cut	200 mm	2 Nos.	File flat second cut	200 mm	2 Nos.
203.	File flat smooth	200 mm	2Nos.	File flat smooth	200 mm	2Nos.
204.	Plier - Flat Nose	150 mm	4 Nos.	Plier - Flat Nose	150 mm	4 Nos.
205.	Round Nose pliers	100 mm	4 Nos.	Round Nose pliers	100 mm	4 Nos.
206.	Scriber straight	150 mm	2 Nos.	Scriber straight	150 mm	2 Nos.
207.	Hammer ball pen	500 grams	1 No.	Hammer ball pen	500 grams	1 No.
208.	Allen key set (Hexagonal set of 9)	1 - 12 mm, set of 24 Keys	1 No.	Allen key set (Hexagonal set of 9)	1 - 12 mm, set of 24 Keys	1 No.
209.	Tubular box spanner	Set - 6 - 32 mm	1 set.	Tubular box spanner	Set - 6 - 32 mm	1 set.
210.	Magnifying lenses	75 mm	2 Nos.	Magnifying lenses	75 mm	2 Nos.
211.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.	Continuity tester	With 4 ½ Digit Display and 20k Count	6 Nos.
212.	Hacksaw frame adjustable	300 mm	2 Nos.	Hacksaw frame adjustable	300 mm	2 Nos.
213.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.	Chisel - Cold - Flat	10 mm X 150 mm	1 No.
214.	Scissors	200mm	1 No.	Scissors	200mm	1 No.
215.	Handsaw 450mm	Hand Saw - 450 mm	1 No.	Handsaw 450mm	Hand Saw - 450 mm	1 No.
216.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.	Hand Drill Machine Electric with Hammer Action	13 mm	2 Nos.
217.	First aid kit		1 No.	First aid kit		1 No.
218.	Bench Vice	Bench Vice - 125 mm Bench Vice - 100 mm Bench Vice - 50 mm	1 No. each	Bench Vice	Bench Vice - 125 mm Bench Vice - 100 mm Bench Vice - 50 mm	1 No. each
219.				Wire stripper		12 Nos.

List of Equipments

220.	Multiple Output DC regulated power supply	0-30V, 2 Amps, \pm 15V Dual Tracking, 5V/5A, Display digital, Load & Line Regulation: \pm (0.05 %+100 mV), Ripple & Noise: 1 mVrms. Constant Voltage & Current operation	4 Nos.	Multiple Output DC regulated power supply	0-30V, 2 Amps, \pm 15V Dual Tracking, 5V/5A, Display digital,	4 Nos.
221.	DC Regulated Variable Programmable DC Power	0-30V/3A with numeric keypad, PC interface and LCD	2 Nos.	Regulated Variable DC Power Supply	0-30V/3A with seven segment LED display	2 Nos.

Supply	for Voltage, Current & Power					
222.	LCR meter (Digital) Handheld	It can Measure six basic parameters R,C,L equipped with SMD Component Test Fixture	1 No.	LCR meter (Digital) Handheld		1 No.
223.	70 MHz Mixed Signal Oscilloscope (4 Analog + 16 Digital Channel)	With more than 20Mpt memory Real time Sampling 1GSa/sec , having LAN Interface with, I2C , SPI, Runt etc .. And RS232/UART, I2C and SPI trigger decoding functions, two channel 25MHz awg plus math functions like differentiation, integration, abs, AND,OR,NOT etc.	1 No.	Digital Storage Oscilloscope	30 MHz	1 No.
224.	25 MHz Arbitrary Waveform Generator with Digital Display for Frequency and Amplitude	Two Channel, 200MSa/Sec and 2Mpt memory with more than 150 different arbitrary waveforms and built-in 8 th order harmonic generation and 150MHz Frequency counter PC Connectivity USB Device/Host and LAN	1 No.	Multi Waveform Signal Generators	10 MHz	4 No.
225.	6 1/2 Digit Digital Multimeter	Measurement Functions: DC &AC Voltage, DC&AC Current, 2-wire & 4-wire Resistance, CAP, Diode, Connectivity, Frequency, Period, Any Sensor. Temperature: RTD, THERM,TC (B/E/J/K/N/R/S/T) PC Interface USB Host, USB Device, LAN(LXI-C) Measurement Speed 10k	1 No.			

		readings/sec				
226.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz Built in tracking generator Min. -148 dBm DANL Display 8" TFT or more PC Interface: USB Host & Device, LAN(LXI)	1 No.	3GHz Spectrum Analyzer with built-in Tracking Generator	Frequency Range 9 kHz to 3.2 GHz Resolution Bandwidth(-3 dB): 10 Hz to 1 MHz	1 No.
227.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Spectrum Analyzer. Arbitrary Waveform Generator Sine 50MHz ,Square 15MHz, Triangle 100KHz , AM –FM Modulation, 16 Channel Logic Analyzer Frequency and Phase Meter USB 2.0/ 3.0 Interface	1No.	Multi Function Test & Measuring Tool for Field Applications and Testing compatible with Laptop	300 MHz Bandwidth 2 Channel Digital Storage Oscilloscopes, Arbitrary Waveform Generator Sine, Square, Triangle , AM –FM Modulation,	1No.
228.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1No.	Electrical Safety Trainer	Demonstration of importance of earthing in any electrical device. Arrangement to study role of fuse and types of slow blow, high blow fuse in any electronic circuit. Arrangement to study the importance of MCB and it's working.	1No.
229.	Analog Component Trainer with following Seven Basic Modules	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed);	1 No.	Analog Component Trainer with following Seven Basic Modules	Breadboard for Circuit design DC power supply: +5V,1A (Fixed); +12V, 500mA (Fixed); ±12V,	1 No.

	<ul style="list-style-type: none"> • Diode Characteristics (Si,Zener,LED) • Rectifier Circuits • Diode as Clipper Circuit • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics • Transistor as a switch <p>±12V, 500mA (Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle (1Hz to 100KHz) Modulating Signal Generator: Sine, Square, Triangle (1Hz to 10KHz). Voltage, current and frequency on board LCD display. PC Interface – Acquisition from two analog input channel Simulation Software</p>		<ul style="list-style-type: none"> • Diode Characteristics (Si,Zener,LED) • Rectifier Circuits • Diode as Clipper Circuit • Diode as Clamping Circuit • Zener as voltage regulator. • Transistor Type NPN & PNP and CE Characteristics <p>Transistor as a switch</p>	<p>500mA (Variable) AC power Supply: 9V-0V-9V, 500mA Function Generator: Sine, Square, Triangle Modulating Signal Generator: Sine, Square, Triangle</p>		
230.	Digital IC Trainer	Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: (TTL), 128x64 Graphical LCD, Pulser Switches, Data Switches: 8 Nos, LED: 8 Nos. (TTL), Seven Segment Display, Teaching & Learning Simulation Software	1 No.	Digital IC Trainer	Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: Seven Segment Display, Teaching & Learning Simulation Software	1 No.
231.	IT Workbench for computer hardware and networking	The bench comprises with Computer Hardware Training System (02 Nos.) The different circuit boards of PC/AT Computer are exposed on a PCB, LAN Training System with Wireless LAN as well to study Peer to Peer, STAR, RING Topology. Protocols: CSMA	1 No.	IT Workbench for computer hardware and networking	As per Requirement	1 No.

		/CD, CSMA /CA, Stop N Wait, Go back to N, Selective repeat, Sliding Window, Token Bus, Token Ring, Colored representation of data in transmission & reception. Data transmission speed: 10/100 Mbps, Smart managed 3 Layer and 2 Layer Switch, Media converter, POE Switch, Wi-Fi LAN card, IP Camera, Energy meter, LED tube light, Voltmeter and Ammeter will be fitted. Networking Fundamentals Teaching Simulation Software DSO 50MHz 4 Channel , 1GSa/Sec ,more than 20 Mpt memory DSO DMM : 4 ^{1/2} Digit with LCD Display				
232.	Laptop latest configuration		1 No.	Laptop latest configuration		1 No.
233.				Desktop computer	Latest configuration	24+1 No.
234.				UPS	5 KVA	As required
235.	Laser jet Printer		1 No.	Laser jet Printer		1 No.
236.	Internet Broadband Connection		1 No.	Internet Broadband Connection		1 No.
237.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.	Electronic circuit simulation software with five user licenses	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	1 No.
238.	Different types of electronic and electrical cables, connectors, sockets,		As required	Different types of electronic and electrical cables, connectors, sockets,		As required

	terminations.			terminations.		
239.	Different types of Analog electronic components, digital ICs, power electronic components, general purpose PCBs, bread board, MCB, ELCB		As required	Different types of Analog electronic components, digital ICs, power electronic components, general purpose PCBs, bread board, MCB, ELCB		As required
240.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts I/P Voltage: 170 to 270 V De-soldering : 70 Watt Temperature Range : 180 to 480 ^o Centigrade Power Consumption : 270 Watts Hot Air Temperature : 200 to 550 ^o Centigrade	1 No.	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption: 60 Watts De-soldering : 70 Watt Power Consumption : 270 Watts Hot Air Temperature : 200 to 550 ^o Centigrade	1 No.
241.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD Components. SMD Soldering Jig.	1 No.
242.	Microcontroller kits (8051) along with programming software (Assembly level Programming) With six important different application modules	Core 8051 MCU clocked at 11.0592 MHz., supporting both programming modes Keypad and computer ,LCD for both programming and run mode, ready to run programmer to support	1 No.	Arduino and Raspberry-pi based IoT system with cloud access, accessories, analog and digital ports, support for stepper motor, servo motors, UART port	Arduino, Raspberry-pi and RP 2040 based IoT system with all accessories sensors and cloud access minimum 10 sensors	12 Nos.

	<p>13. Input Interface Switch, Matrix Keypad, ASCII Keypad 14. Display LCD, Seven Segment, LED Matrix 15. ADC & DAC 16. PC Interface module 17. Motor DC, Stepper, Servo 18. DAQ</p>	<p>family of controllers AT89C52 ,DC Power Supplies +12V, -12V, +5V & -5V, Breadboard to make circuits, Learning content through simulation Software and following application modules</p> <ol style="list-style-type: none"> 1. Input Interface : 4x4 Matrix Keypad, ASCII Key PAD, Four Input Switch 2. Display 16X2 LCD, Seven Segment, LED Bar Graph 3. ADC/DAC with ADC/DAC0808 4. PC Interface: RS232 & USB 5. Motor Drive: DC, Servo, Stepper 6. DAQ: 4ch analog 10bit, 22 DIO resolution,6MHz Frequency Counter (square wave), DAQ with PC interface software 		<p>for serial data communication and separate port for I2C</p> <p>19.</p>		
243.	<p>Sensor Trainer Kit Containing following Sensors</p> <ul style="list-style-type: none"> x) Air humidity and Temperature y) RTD z) Atmospheric Pressure aa) Air Quality bb) Smoke Detector Sensors cc) Limit Switch dd) Photo sensors ee) Capacitive displacement 	<p>IoT enabled Android based 7" Graphical touch LCD with inbuilt cortex processor & DAQ for acquiring analog data and software for viewing the output waveforms with USB storage and HDMI output. Ethernet port to connect real world. Inverting, Non – Inverting, Power, Current, Instrumentation and Differential Amplifier, F to V, V to F, I to V, V to I Converter, High Pass and</p>	2 Nos.	<p>Sensor Trainer kit with sensor pack Containing following Sensors</p> <ul style="list-style-type: none"> ff) Air humidity and Temperature gg) RTD hh) Atmospheric Pressure ii) Air Quality jj) Smoke Detector Sensors kk) Limit Switch ll) Photo sensors <p>Capacitive displacement</p>	<p>Interfacing all listed sensors and test their working status</p>	12 Nos.

		Low Pass Filter, Buffer, LED, Buzzer, LED Bar Graph, Touch Switch Included Sensors :RTD,NTC Thermistor,LM35,Photovoltaic , Air humidity and Temperature, Gas(Smoke), Air Quality, Atmospheric Pressure, Limit switch, Capacitive displacement				
244.	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required	Different types of electronic and electrical cables, connectors, sockets, terminations.		As required
245.	Different Microcontroller/Processor Training and Development Platform for AVR, PIC, ARM and Arduino.	MCU PIC16F877A , 4MHz, Onboard programmer will program PIC Devices, USB Port MCU ATMEGA8515 ,8MHz, onboard programmer will program ATMEGA series microcontroller, USB Port MCU LPC2148 , 12MHz,LED 8Nos, ADC 10 bit 10Nos, DAC 10bit ,USB and RS232, RTOS support, JTAG Connector, USB2.0,Onboard Zigbee, I2C,SPI,RTC,DC motor, PWM, Sensor LM35 , Display 16X2 LCD Display , Motor Drive: L293D 600mA (5-12V),Programmer USB Interface.	1 No.			

		<p>Microcontroller ATmega328p (Arduino Based), 16MHz, Digital I/O Pins : 14 (of which 6 provide PWM output) , Flash Memory : 16KB (of which 2KB used by boot loader)</p> <p>Each platform should have Bread DC Power Supplies +12V, -12V, +5V & - 5V, Breadboard to make circuits.</p>				
246.	Internet of Things Explorer	<p>Processor: 64bit ARMv7 with 1GB RAM, Memory 32GB, OS: Open source Linux, Connectivity: Wireless LAN, Bluetooth, Zigbee, USB & Ethernet, HDMI interface, 1.77" Color TFT LCD , Driver for Stepper and DC Motor, six 16 bit Analog Input, RTC and 4-20mA input. Zigbee: 2.4GHz, Sensors: Temperature and Humidity, Air Quality, Soil Moisture, Ambient Light, Soil/Water temperature, PIR Sensor. GSM IoT Gateway - Quad-Band 850/900/1800/1900 MHz - GPRS multi-slot class, Control via AT commands. Explore physical and application layer protocols like RS232, RS485, GSM, Ethernet and MQTT, CoAP,</p>	1 No.	Internet of Things Explorer	<p>System with attached and database modules for sensors, controllers, gateway and application control facility</p>	1 No.

		HTTP, FTP. Cloud/server configuration includes HTML, Java, php and mySQL. IoT Node: Wireless 2.4GHz Zigbee, 5 Analog Inputs and at least 3 Digital Outputs, At least one I2C Channel, support OTA. Online Cloud/Server Services for 2 years. Battery 3.7V/4400mAH with Solar Panel, USB interface.				
247.	Field Interface and Protocol Simulation Kit	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <p>21. Ethernet Devices with Isolated Supply and port</p> <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO (0-10VDC), Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 <p>22. 16 Port Ethernet Switch for networking of field ethernet devices</p>	1 No.	<p>Field Interface and Protocol Simulation Kit</p>	<p>A console including :Any Branded Desktop Computer with Windows Operating System</p> <p>26. Ethernet Devices with Isolated Supply and port</p> <ul style="list-style-type: none"> ▪ 4 AI(0.1% FSR), 4 AO Ethernet Port – Qty 1 ▪ 8 Relay Outputs, Ethernet Port – Qty 1 ▪ 8 Pulse Outputs, Ethernet Port – Qty 1 ▪ 8 Digital Inputs, Ethernet Port – Qty 1 ▪ 4 RS485 Slave ports, 1 Ethernet Port – Qty 4 <p>27. 16 Port Ethernet Switch for networking of field ethernet devices</p> <p>28. SMPS to power up multiple ethernet based field simulation devices</p> <p>29. Required Connectors, Switches and LED indicators</p>	12 Nos.

	<p>23. SMPS to power up multiple ethernet based field simulation devices</p> <p>24. Required Connectors, Switches and LED indicators for Field Interface circuits such as Digital Inputs, Relay Outputs, Analog Inputs, Analog Outputs, Pulse Signals</p> <p>25. Software</p> <ul style="list-style-type: none"> ▪ Communication with simulation device on ethernet MODBUS TCP Protocol ▪ Field Interface simulation using HMI replica of Console for easy understanding of students ▪ Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP ▪ Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, DLMS Client <p>IoT Protocol Simulations – MQTT topic publish subscribe simulation</p>			<p>for Field Interface circuits such as Digital Inputs, Relay Outputs, Analog Inputs, Analog Outputs, Pulse Signals</p> <p>30. Software</p> <ul style="list-style-type: none"> ▪ Communication with simulation device on ethernet MODBUS TCP Protocol ▪ Field Interface simulation using HMI replica of Console for easy understanding of students ▪ Port Simulation – Serial Port Terminal, TCP/IP, UDP, HTTP ▪ Protocol Simulation – MODBUS RTU Master/Slave, MODBUS TCP Master/Slave, 	
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LIST OF THE MACHINERIES						
248.	Solar Power Lab	<p>Solar PV Modules.</p> <p>Open Circuit Voltage Voc 10V, Short Circuit Current ISC0.60mA</p> <p>Maximum Power Voltage (Vmp) 8.80V, Maximum Power Current (Imp): 0.57A, Batteries ,</p> <p>Voltage 6V, 4Ah. Buck & Boost Converter, Dusk to Dawn Sensing, LCD for Voltage and Current.</p> <p>Interactive Solar Training Software</p>	1 No.	Solar Power Lab	<p>Solar PV Modules.</p> <p>Open Circuit Voltage Voc 10V, Short Circuit Current ISC0.60mA</p> <p>Maximum Power Voltage (Vmp) 8.80V, Maximum Power Current (Imp): 0.57A, Batteries ,</p> <p>Voltage 6V, 4Ah. Buck & Boost Converter, Dusk to Dawn Sensing, LCD for Voltage and Current.</p> <p>Interactive Solar Training Software</p>	12 Nos.
249.	Solar PV Module Analyzer	<p>Micro-controller Based with 16X2 LCD, PC Interface, mains & battery operated. Capable to measure Open Circuit Voltage and Short Circuit Current, Maximum Voltage and Current at Maximum Power</p> <p>DCV Range 0-50V, DCA Range 10A</p>	1 No.	Solar PV Module Analyzer	<p>Micro-controller Based with 16X2 LCD, PC Interface, mains & battery operated. Capable to measure Open Circuit Voltage and Short Circuit Current, Maximum Voltage and Current at Maximum Power</p> <p>DCV Range 0-50V, DCA Range 10A</p>	12 Nos.
250.	<p>Wireless Communication modules for interfacing with microcontrollers</p> <p>u) RFID Card Reader</p> <p>v) Finger Print</p> <p>w) Zigbee</p> <p>x) GPS</p> <p>y) GSM</p> <p>z) Bluetooth</p>	<p>Core 8051 MCU clocked at 11.0592 MHz, supporting both programming modes</p> <p>Key Pad and PC ,LCD for both programming mode and run mode, ready to run</p> <p>programmer to support family of controllers</p> <p>AT89C51/52 & 55 ,DC Power Supplies +12V, -12V, +5V & -</p>	1 No.	<p>Wireless Communication modules for interfacing with microcontrollers</p> <p>a) RFID Card Reader</p> <p>b) Finger Print</p> <p>c) GPS</p> <p>d) GSM</p> <p>e) Bluetooth</p>	<p>programmable controller supporting both programming modes Key Pad and PC ,LCD for both programming mode and run mode, ready to run</p> <p>programmer to support family of controllers Breadboard to make circuits, detailed learning content through simulation Software and following</p>	1 No.

	aa) WiFi	5V,Breadboard to make circuits, detailed learning content through simulation Software and following application modules : RFID Card Reader ,Finger Print, Zigbee, GPS, GSM, Bluetooth and WiFi		f) WiFi	application modules: RFID Card Reader,Finger Print, GPS, GSM, Bluetooth and WiFi	
251.	Sensors for Green House Application	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: CO2: Range: (0-2000ppm), O2 Range: (0-25%), VOC, Air Temperature& humidity, Atmospheric Pressure, Soil Moisture& Temperature, NO2, Leaf Wetness, Solar Radiation, UV Index.	1 No.	Sensors for Green House Application	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: CO2: Range: (0-2000ppm), O2 Range: (0-25%), VOC, Air Temperature& humidity, Atmospheric Pressure, Soil Moisture& Temperature, NO2, Leaf Wetness, Solar Radiation, UV Index.	1 No.
252.	Solar Water Pump	1HPSolar Panel 40W (36Nos) MPPT 400 TO 700V DC Operating Frequency : 30Hz to 50Hz, Protection : Dry Run , Short CircuitMaximum PV Voltage 750V DC Remote Operation through GSM module	1 No.	Solar Water Pump	1HPSolar Panel 40W (36Nos) MPPT 400 TO 700V DC Operating Frequency : 30Hz to 50Hz, Protection : Dry Run , Short CircuitMaximum PV Voltage 750V DC Remote Operation through GSM module	1 No.
253.	Weather Monitoring System	Temperature Range : -10°C to 90°C, Relative Humidity Operating Range 0 to 95% ,Wind Speed Sensor Speed : 0 to 20m/S Resolution 1m/S ,Wind Direction, Rainfall Bucket collector, Solar Radiation, UV Index,Atmospheric Pressure,	1 No.	Weather Monitoring System	Temperature Range : -10°C to 90°C, Relative Humidity Operating Range 0 to 95% ,Wind Speed Sensor Speed : 0 to 20m/S Resolution 1m/S ,Wind Direction, Rainfall Bucket collector, Solar Radiation, UV Index,Atmospheric Pressure, Air Quality, PM2.5, GSM based	1 No.

		Air Quality, PM2.5, GSM based cloud connectivity, Application Software for Dashboard for remote monitoring and analysis. Power Supply Battery : 12V/42AH Solar Panel : 100W			cloud connectivity, Application Software for Dashboard for remote monitoring and analysis. Power Supply Battery : 12V/42AH Solar Panel : 100W	
254.	Sensors & Actuator for Irrigation Application	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Capacitive Soil Moisture & Temperature, Leaf Wetness, Solar Radiation(0-2000mw/m ²), Thermal Imager Actuators :Sprinklers, Relay, Flow sensor	1 No.	Sensors & Actuator for Irrigation Application	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Capacitive Soil Moisture & Temperature, Leaf Wetness, Solar Radiation(0-2000mw/m ²), Thermal Imager Actuators :Sprinklers, Relay, Flow sensor	1 No.
255.	Sensors for Livestock Monitoring	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Active & Passive RFID tags with reader, Bluetooth tags with application software, GPS and PIR.	1 No.	Sensors for Livestock Monitoring	All should be compatible with Sensor Training Platform & IOT Explorer mentioned above: Active & Passive RFID tags with reader, Bluetooth tags with application software, GPS and PIR.	1 No.
256.	DRONE (optional)	Including the Flight Controller, and a RF Sensing System that provides reliability during flight. Also It should have spraying system and flow sensor ensures accurate operations. Intelligent Operation Planning System and should	1 No.	DRONE (optional)	Including the Flight Controller, and a RF Sensing System that provides reliability during flight. Also It should have spraying system and flow sensor ensures accurate operations. Intelligent Operation Planning System and should have Agriculture Management	1 No.

		<p>have Agriculture Management Platform, User can plan operations, manage flights in real-time, and closely monitor aircraft operating status</p> <p>Spray System : Tank Volume minimum 8L</p> <p>Payload Approx 8 Kg</p>		<p>Platform, User can plan operations, manage flights in real-time, and closely monitor aircraft operating status</p> <p>Spray System : Tank Volume minimum 8L</p> <p>Payload Approx 8 Kg</p>	
257.	IoT based Smart Roof Top / Solar Pump system (Application Project)	<p>1. Inverter (can be existing inverter of Solar Kit)</p> <p>2. IoT based Energy Monitoring DCU with Three Phase 415 VAC input, Two RS485 MODBUS Communication Port, Local Ethernet connectivity, Four Analog Inputs (24-bit ADC, 0.1%FSR) for integration of weather sensors, SD Card Storage, Remote GSM/GPRS connectivity using Quad Band GSM/GPRS Module</p> <p>3. Embedded Calculations for %CUF (capacity utilization factor), %PR (Performance Ratio)</p> <p>4. SMC box with IP65 and IK10 ratings</p> <p>Responsive Web application for Smart Energy management system having with map view based dash</p>	1 No.	<p>IoT based Smart Roof Top / Solar Pump system (Application Project)</p> <p>1. Inverter (can be existing inverter of Solar Kit)</p> <p>2. IoT based Energy Monitoring DCU with Three Phase 415 VAC input, Two RS485 MODBUS Communication Port, Local Ethernet connectivity, Four Analog Inputs (24-bit ADC, 0.1%FSR) for integration of weather sensors, SD Card Storage, Remote GSM/GPRS connectivity using Quad Band GSM/GPRS Module</p> <p>3. Embedded Calculations for %CUF (capacity utilization factor), %PR (Performance Ratio)</p> <p>4. SMC box with IP65 and IK10 ratings</p> <p>Responsive Web application for Smart Energy management system having with map view based dash</p>	1 No.

		board and individual system details with various energy management reports such as load profile, consumption pattern, generation pattern, %CUF (capacity utilization factor), %PR (Performance Ratio) etc.			such as load profile, consumption pattern, generation pattern, %CUF (capacity utilization factor), %PR (Performance Ratio) etc.	
258.	IoT Data Acquisition Systems &Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon)24 VDC Isolated Supply, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ, WiFi IoT DAQ, Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet, Serial to Wi-Fi, Serial to GPRS	1 No.	IoT Data Acquisition Systems &Protocol Converters	Connectivity to Cloud (IBM, Microsoft, Amazon)24 VDC Isolated Supply, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs Ethernet IOT DAQ, WiFi IoT DAQ, Cellular (GSM / GPRS) IoT DAQ MODBUS RTU to MODBUS TCP 24 VDC Isolated Power Supply, 4 Isolated MODBUS RTU Master Port Serial to Ethernet, Serial to Wi-Fi, Serial to GPRS	1 No.
259.	IoT EDGE Computing Device	Embedded SCADA for 500 Tags, 24 VDC Isolated Power Supply, 4 MODBUS RTU Master, 32 GB Built in SD Card, 1 Wi-Fi Port, 1 Ethernet Port, 1 GPRS Port, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs	1 No.	IoT EDGE Computing Device	Embedded SCADA for 500 Tags, 24 VDC Isolated Power Supply, 4 MODBUS RTU Master, 32 GB Built in SD Card, 1 Wi-Fi Port, 1 Ethernet Port, 1 GPRS Port, 4 Analog Inputs (0.1% FSR), 8 Pulse Inputs (up to 1 kHz), 8 Digital Inputs, 4 Relay Outputs	1 No.

260.	Cloud Based IoT SCADA	1000 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.	Cloud Based IoT SCADA	1000 Tag License for Cloud based SCADA to connect IoT Devices and IoT based Smart Systems with Device Manager, IO Server, Alarm Server, Historian and Reporter, Web Server. Cloud Hosting Services for 20 devices for 7 years	1 No.
261.				Arduino Board with accessories	Arduino Moule - latest specifications	As required
262.				Raspberry-pi Board with accessories	Raspberry Pi Module - latest specifications	As required

D. Shop Floor Furniture and Materials - For 2 (1+1) units no additional items are required.

263.	Instructor's table		1 No.	Instructor's table		1 No.
264.	Instructor's chair		2 Nos.	Instructor's chair		2 Nos.
265.	Metal Rack	100cm x 150cm x 45cm	4 Nos.	Metal Rack	100cm x 150cm x 45cm	4 Nos.
266.	Lockers with 16 drawers standard size		2 Nos.	Lockers with 16 drawers standard size		2 Nos.
267.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	2 Nos.
268.	Interactive Smart Board with Projector		1 No.	Interactive Smart Board with Projector		1 No.
269.	Fire Extinguisher		2 Nos.	5. Fire Extinguisher	Arrange all proper NOCs and equipments from Municipal/ Competent authorities.	2 Nos.
270.	Fire Buckets		2 Nos.	Fire Buckets		2 Nos.
271.				Computer Table		24+1 No.
272.				Computer Chair		24+1 No.

Note: Internet facility is desired to be provided in the class room.

Annexure II (B)

Tool Kit List of 35 NSQF Aligned and approved Qualifications of LSC

S. No	Qualification Name	NSQC Meeting	NSQC Approval Date	Expiry Date	Additional Tools
1	Consignment Booking Assistant	13th	25-11-2021	25-11-2024	LLMS, TMS
2	Goods Packaging Machine Operator	13th	25-11-2021	25-11-2024	LLMS, WMS
3	Loader/Unloader	15th	27-01-2022	27-01-2025	LLMS, TMS
4	Material Handling Equipment (MHE) Maintenance Technician	15th	27-01-2022	27-01-2025	LLMS, WMS
5	Warehouse Picker	15th	27-01-2022	27-01-2025	LLMS, WMS
6	Material Handling Equipment (MHE) Operator and Technician	27th	28-02-2023	28-02-2026	LLMS
7	Refrigeration Equipment Maintenance Specialist	27th	28-02-2023	28-02-2026	LLMS
8	Commercial Vehicle Driver -LMO	27th	28-02-2023	28-02-2026	LLMS, TMS
9	Supply Chain Supervisor -Agri Commodities	27th	28-02-2023	28-02-2026	LLMS, WMS
10	Clearance Support Agent	17th	31-03-2022	31-03-2025	LLMS
11	Consignment Tracking Executive	13th	25-11-2021	25-11-2024	LLMS, TMS
12	Courier Delivery Executive	13th	25-11-2021	25-11-2024	LLMS
13	Data Feeder - Warehouse	15th	27-01-2022	27-01-2025	LLMS, WMS
14	Documentation Executive	13th	25-11-2021	25-11-2024	LLMS, TMS
15	Inventory Clerk	13th	25-11-2021	25-11-2024	LLMS, WMS
16	Key Consignor Executive	15th	27-01-2022	27-01-2025	LLMS
17	Loading Supervisor	15th	27-01-2022	27-01-2025	LLMS, WMS
18	Receiving Assistant	15th	27-01-2022	27-01-2025	LLMS, WMS
19	Shipment Classification Agent	17th	31-03-2022	31-03-2025	LLMS
20	Transport Consolidator	15th	27-01-2022	27-01-2025	LLMS, TMS
21	Transport Coordinator	13th	25-11-2021	25-11-2024	LLMS, TMS
22	Warehouse Binner	15th	27-01-2022	27-01-2025	LLMS, WMS
23	Warehouse Claims Coordinator	17th	31-03-2022	31-03-2025	LLMS, WMS
24	Warehouse Packer	15th	27-01-2022	27-01-2025	LLMS, WMS
25	Warehouse Quality Checker	17th	31-03-2022	31-03-2025	LLMS, WMS
26	Warehouse Supervisor	15th	27-01-2022	27-01-2025	LLMS, WMS
27	Courier Associate - Operations	27th	28-02-2023	28-02-2026	LLMS
28	Courier Executive -	27th	28-02-2023	28-02-2026	LLMS

	Operations				
29	Courier Manager - Operations	27th	28-02-2023	28-02-2026	LLMS
30	Courier Supervisor - Operations	27th	28-02-2023	28-02-2026	LLMS
31	E-commerce Manager	27th	28-02-2023	28-02-2026	LLMS, WMS
32	E-commerce Team Lead	27th	28-02-2023	28-02-2026	LLMS, WMS
33	Warehouse Associate	27th	28-02-2023	28-02-2026	LLMS, WMS
34	Warehouse Executive	27th	28-02-2023	28-02-2026	LLMS, WMS
35	Warehouse Supervisor	27th	28-02-2023	28-02-2026	LLMS, WMS

Annexure III

List of Defence Forces Qualifications proposed for adoption by various Indian Army Directorates

Ser No	Adopting Body	No of Files for Adoption	Sl. No	Qualification files	Developer Body
1	Directorate General of Armoured Corps	6	I.	Junior Supervisor Sheet Metal Works	Corps of Engineers
			II.	Senior Technician Wood Work	Corps of Engineers
			III.	Guest House Coordinator	Directorate General of Army Air Defence
			IV.	Security Supervisor	Directorate General of Infantry
			V.	Artisan Metal Works Technician	Corps of Electronics and Mechanical Engineers
			VI.	Senior Technical Supervisor Artisan Metal Works	Corps of Electronics and Mechanical Engineers
2	Directorate General of Artillery	12	I.	Music Performer	Additional Directorate General of Army Educational Corps
			II.	Radar Jammer Vehicle Operator	Directorate General of Army Air Defence
			III.	Production Line Operator	Directorate General of Army Air Defence
			IV.	Material Handler	Directorate General of Army Air Defence
			V.	Guest House Coordinator	Directorate General of Army Air Defence
			VI.	Radio Communication Operator	Directorate General of Armoured Corps
			VII.	Senior Draughtsman Topographical	Directorate General of Signals
			VIII.	Supervisor Draughtsman Topographical	Directorate General of Signals
			IX.	Draughtsman Topographical	Directorate General of Signals
			X.	Survey Technician	Corps of Engineers

			XI.	Senior Technician Wood Work	Corps of Engineers
			XII.	Senior Technician Painting & Decorating	Corps of Engineers
3	Directorate General of Infantry	3	I.	Guest House Coordinator	Directorate General of Army Air Defence
			II.	Senior Technician Wood Work	Corps of Engineers
			III.	Senior Technician Painting & Decorating	Corps of Engineers
4	Additional Directorate General of Mechanised Infantry	3	I.	Senior Technician Wood Work	Corps of Engineers
			II.	Senior Technician Painting & Decorating	Corps of Engineers
			III.	Guest House Coordinator	Directorate General of Army Air Defence
5	Directorate General of Army Air Defence	2	I.	Senior Technician Wood Work	Corps of Engineers
			II.	Senior Technician Painting & Decorating	Corps of Engineers
6	Directorate General of Signals	3	I.	Music Performer	Additional Directorate General of Army Educational Corps
			II.	Security Supervisor	Directorate General of Infantry
			III.	Senior Technician Wood Works	Engineers in Chief Branch
7	Dte Gen of Electronics and Mechanical Engineers	6	I.	Senior Technician Sheet Metal Works	Corps of Engineers
			II.	Senior Technician Welder	Corps of Engineers
			III.	Senior Technician Wood Work	Corps of Engineers
			IV.	Senior Technician Painting & Decorating	Corps of Engineers
			V.	Senior Technician Conventional & CNC Machine Opreation	Corps of Engineers
			VI.	Guest House Coordinator	Dte Gen Army Air Defence
8	Directorate General of	3	I.	Music Performer	Additional Directorate General of Army Educational Corps

	Army Medical Services		II.	Guest House Coordinator	Directorate General of Army Air Defence
			III.	Security Supervisor	Directorate General of Infantry
9	Directorate General of Ordnance Services	3	I.	Senior Technician Wood Work	Corps of Engineers
			II.	Senior Technician Painting & Decoating	Corps of Engineers
			III.	Guest House Coordinator	Directorate General of Army Air Defence
10	Directorate General of Military Intelligence	3	I.	Guest House Coordinator	Directorate General of Army Air Defence
			II.	Senior Technician Painting & Decorating	Corps of Engineers
			III.	Foreign Language Interpreter	Additional Directorate Army Education Corps
11	Provost Marshal Directorate	8	I.	Field Investigator	Director General of Military Intelligence
			II.	Private Detective	Director General of Military Intelligence
			III.	Security Manager	Director General of Military Intelligence
			IV.	Corporate Investigator	Director General of Military Intelligence
			V.	Assistant Security Officer	Directorate General of Armoured Corps
			VI.	Commercial Vehicle Trainer	Directorate General of Armoured Corps
			VII.	Light Motor Vehicle Trainer	Directorate General of Armoured Corps
			VIII.	Laundry Manager	Additional Directorate General of Mechanised Infantry
12	Directorate General of Remount & Veterinary Services	1	I.	Music Performer	Additional Directorate Army Education Corps
13	Directorate General of Ordnance ServicesSupplies & Transport	1	I.	Guest House Coordinator	Directorate General of Army Air Defence

14	Directorate General of Army Aviation	7	I.	Communication Centre and Radio System Specialist	Directorate General of Signals
			II.	Chef Executive	Directorate General of Supplies & Transport
			III.	Commis Chef (Advanced)	Directorate General of Supplies & Transport
			IV.	Commercial Vehicle Trainer	Directorate General of Armoured Corps
			V.	Light Motor Vehicle Trainer	Directorate General of Armoured Corps
			VI.	Radio Communication Operator	Directorate General of Armoured Corps
			VII.	Senior Store Keeper	Directorate General of Ordnance Services
15	Corps of Engineers	4	I.	Music Performer	Additional Directorate Army Education Corps
			II.	Artisan Metal Works Technician	Corps of Electronics and Mechanical Engineers
			III.	Senior Technical Supervisor Artisan Metal Works	Corps of Electronics and Mechanical Engineers
			IV.	Manager Metal Works	Electronics and Mechanical Engineers

Summary of Qualifications submitted for NSQF alignment by Awarding Bodies- Central Ministries/ State Government/ other ABs

AWARDING BODY

I.DGT

A. SECTOR – IT-ITeS, (1 New Qualification)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Data Annotation Assistant	Data Management	Passed 10th class examination	Total - 1350 hrs. Theory - 360 hrs. Practical - 840 hrs. OJT - 150 hrs.	3.5	Professional <ul style="list-style-type: none">• Data Annotator• Senior Data Annotator• Project Manager Entrepreneur

B. SECTOR – Telecommunications (1 New Qualification)

Sl no	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	5G Network Technician	Networking	Passed 12th class examination with Science and Mathematics or with vocational subject in same sector or its equivalent.	Total - 1350 hrs Practical - 840 hrs. Theory - 360 hrs. OJT - 150 hrs. Optional course - 240 hrs.	4.5	Professional - 5G Network Technician - Senior Technician - Supervisor - Manager - Entrepreneur Technical / Academic - ATS - CITS

					- Diploma/ Advance Diploma (Vocational)
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II. DWSSC

SECTOR – Domestic Workers, (3 New Qualifications)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Sanitary Worker	Housekeeping	10th Grade Pass OR 9th Grade pass with 1 year of relevant experience OR 8th Class pass with 2 year of relevant experience OR 5th Class Pass with 5 years of relevant experience OR Previous relevant Qualification of NSQF Level 2.5 with 1.5 Year of relevant experience OR Previous relevant Qualification of NSQF Level 2 with 3 Year of relevant experience	Total- 420 Hrs Generic Training -240 Hrs Elective 1 -90 Hrs Elective 2 -90 Hrs Min Training-330 Hrs Max Training -420 Hrs	3	Sanitary Executive

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2	Sr. Sanitary Worker	Housekeeping	<p>11th Grade pass</p> <p>OR</p> <p>10th grade pass and pursuing continuous schooling</p> <p>OR</p> <p>10th grade pass with 1 year relevant experience</p> <p>OR</p> <p>8th Grade pass with 3 year relevant experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 2.5 with 3 year relevant experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 3 with 1.5 year relevant experience</p>	<p>Total: 420 Hrs</p> <p>Theory: 270 Hrs</p> <p>Practical: 150 Hrs</p> <p>ES: 30 Hrs (Included)</p>	3.5	Sanitary Supervisor
3	House Manager	Housekeeping	<p>Completed 3rd year of 3-year/ 4-years UG</p> <p>OR</p> <p>Pursuing 3rd year of 3-year/ 4-years UG and continuing education</p> <p>OR</p> <p>Completed 2nd year diploma after 12th</p> <p>OR</p> <p>Completed 3-year diploma (after 10th) with 2 years of relevant experience</p> <p>OR</p> <p>12th grade pass with 3 years of relevant experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 4.5 with 1.5 years of relevant experience</p> <p>OR</p>	<p>Total: 630 Hrs</p> <p>Theory: 240 Hrs</p> <p>Practical: 390 Hrs</p> <p>ES: 90 Hrs (Included)</p>	5	Level 5.5-Estate Manager

			Previous relevant Qualification of NSQF Level 4 with 3 years of relevant experience			
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III. Handicrafts and Carpet Sector Skill Council

SECTOR – Handicraft and Carpet (1 Revised Qualification)

Sl no	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Traditional Hand Embroiderer-Supervisor	Hand Embroidery, Designing and Finishing	8th Grade pass with 10 Years of experience in difference types of embroidery OR 10th Grade Pass with 4 year relevant experience OR 12th Grade Pass with 2 year relevant experience OR Previous relevant Qualification of NSQF Level 4 with 3 year relevant experience	(with one elective) TOTAL - 570 Hrs. Theory - 120 Hrs. Practical – 450 Hrs. OJT - 90 Hrs. (with three electives) Total – 1230 hrs. Theory - 240 Hrs. Practical – 990 Hrs. OJT – 90 Hrs.	5	Horizontal- Traditional Hand Embroiderer

IV. Logistics Sector Skill Council

Sector: Logistics (3 New Qualifications)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Rail Logistics Coordinator	Container Train Operations, Private Freight Terminal Operations	Completed 1st year of 3-year/ 4-years UG OR Pursuing 3rd year of 3-year diploma after 10th and continuing education OR Completed 3-year diploma after 10th OR Completed 1st year of 2 year diploma after 12th OR Pursuing 2nd year of 2- year diploma after 12th and continuing education OR 12th Grade Pass + 1 year relevant experience	Total: 510 Hrs. Theory: 150 Hrs. Practical: 270 Hrs. OJT: 30 Hrs. ES: 60 Hrs.	4.5	VERTICAL - Rail Logistics Supervisor
2	Warehouse Data Analyst	Warehousing Operations, Technology	Completed MBA (Operations Management) OR Completed B. E/ B. Tech + 1-year experience in warehouse operations OR Completed 3-Year UG Degree + 5 years' experience in warehouse operations OR Pursuing 2nd year PG diploma in	Total: 630 Hrs. Theory: 165 Hrs. Practical: 345 Hrs. OJT: 30 Hrs. ES: 90 Hrs.	6	VERTICAL - Senior Warehouse Data Analyst

			Logistics after 3 year UG degree			
3	E-commerce Micro Entrepreneur	Entrepreneur	12th Grade Pass OR 10th grade pass with two years of NTC/NAC/CITS OR 10th Grade Pass + 2 years of relevant experience OR 8th Grade Pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS OR Completed 2nd year of 3-year diploma (after 10th)	Total: 480 Hrs. Theory: 140 Hrs. Practical: 280 Hrs. OJT: 30 Hrs. ES: 30 Hrs.	4	VERTICAL - E-commerce entrepreneur (Small scale)

V. Automotive Skills Development Council (4 New Qualifications)

Sector: Automotive

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Front Line Production Resource	Manufacturing	10th Pass OR 8th grade pass with two years of NTC	Total: 4290 Hrs (24 Months) Theory: 420 Hrs ES: 120 Hrs Apprenticeship: 3750 Hrs (21 Months)	4	VERTICAL -Front Line Manager, Level 5

2	Machining and Assembly Technician	Manufacturing	10th Pass OR Relevant NSQF Certificate of level 3	Total:1200 Hrs Practical: 432 Hrs Theory: 216 Hrs OJT: 432 Hrs ES: 120 Hrs	3.5	VERTICAL - Fabrication and Service Technician, Level-4
3	Fabrication and Service Technician	Manufacturing	NSQF Certificate in Machining and Assembly Technician, Level-3.5 OR 12th Pass OR 10th+2 Years of ITI	Total:1200 Hrs Practical: 432 Hrs Theory: 216 Hrs OJT: 432 Hrs ES: 120 Hrs	4	VERTICAL -Manufacturing and Mechatronics Lead Technician, Level-4.5
4	Manufacturing and Mechatronics Lead Technician	Manufacturing	NSQF Certificate in Fabrication and Service Lead Technician, Level-4	Total:1200 Hrs Practical: 432 Hrs Theory: 216 Hrs OJT: 432 Hrs ES: 120 Hrs	4.5	VERTICAL -Automotive Machining Master Technician (NSQF Level 5) / Automotive Assembly Master Technician (NSQF Level 5)

VI. Hydrocarbon Sector Skill Council

SECTOR- Hydrocarbon, (07 New Qualifications)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Green Hydrogen Plant Supervisor	Hydrogen Production, Storage & Transportation	Completed 3-year Diploma after 10th OR Pursuing 3rd year of 3-year Diploma after 10th and continuing education OR 12th grade pass with 1-year NTC/NAC	Total: 600 Hrs Theory: 120 hrs, Practical: 330 Hrs., ES: 60 Hrs.,	4.5	Green Hydrogen Plant Manager

			<p>OR</p> <p>10th Grade pass with 2-year of NTC and 1-year of NAC</p> <p>OR</p> <p>12th Grade pass with 1-year of relevant experience</p> <p>OR</p> <p>10th Grade pass with 2-year of NTC and 1-year of relevant experience</p> <p>OR</p> <p>Previous relevant qualification of NSQF level 4 with 1.5 year of relevant experience</p> <p>Minimum Age 20 Years</p>	OJT: 90 Hrs.		
2	Green Hydrogen Plant Manager	Hydrogen Production, Storage & Transportation	<p>Completed 2nd Years of UG</p> <p>OR</p> <p>Pursuing 2 year of UG continues education</p> <p>OR</p> <p>Completed the 2nd Year of Diploma after 12th</p> <p>OR</p> <p>Completed 3-year diploma after 10th with 1-year relevant experience</p> <p>OR</p> <p>Previous relevant qualification of NSQF level 4 with 3 years of relevant experience</p> <p>OR</p>	<p>Total: 660 Hrs</p> <p>Theory: 150 hrs,</p> <p>Practical: 390 Hrs.,</p> <p>ES: 90 Hrs.,</p> <p>OJT:30 Hrs.</p>	5	Senior Manager - Energy

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			Previous relevant qualification of NSQF level 4.5 with 1.5 years of relevant experience Minimum Age - 20 years			
3	Lab Technician -Green Hydrogen	Hydrogen Production, Storage & Transportation	Completed 1 st year of 3-year Diploma after 10 th OR 8 th Grade pass with 2-year of NTC and 1-year of NAC OR 11 th Grade Pass OR 10 th Grade pass with 1-year of relevant experience Or 8 th Grade pass with 3-year of relevant experience Or Previous relevant qualification of NSQF level 3 with 1.5 year of relevant experience	Total: 510 Hrs Theory: 90 hrs, Practical: 270 Hrs., ES: 60 Hrs., OJT:90 Hrs.	3.5	Senior Storage Technician- Green Hydrogen
4	Secretarial Office Assistant – Oil & Gas	Office management	"Completed 3rd year of 3-Year of UG (in any stream) after 12th OR Completed 2nd year of 3-year of UG (in any stream) after 12th and pursuing 3rd year of UG OR Diploma (one year) in office management with 1 year of relevant experience Minimum Age - 18 years"	Total: 420 Hrs Theory: 105 hrs, Practical: 255 Hrs., ES: 30 Hrs., OJT:30 Hrs.	3.5	Office Secretary – Oil & Gas
5	Executive HR - Oil & Gas	Office management	Completed 3rd year of 3-Year of UG(BBA) after 12th OR Completed 2nd year of 3-year of UG(BBA) after 12th and pursuing 3rd year of UG	Total: 420 Hrs Theory: 105 hrs, Practical: 255 Hrs.,	4	Senior Executive

			Minimum Age - 18 years	ES: 30 Hrs., OJT:30 Hrs.		
6	Executive Finance- Oil & Gas	Office management	"Completed 3rd year of 3-Year of UG(Commerce) after 12th OR Completed 2nd year of 3-year of UG(Commerce) after 12th and pursuing 3rd year of UG Minimum Age - 18 years"	Total: 420 Hrs Theory: 105 hrs, Practical: 255 Hrs., ES: 30 Hrs., OJT:30 Hrs.	4	Senior Executive
7	Green Hydrogen Storage Technician	Hydrogen Production, Storage & Transportation	Completed 1 st year of 3-year Diploma after 10 th OR 8 th Grade pass with 2-year of NTC and 1-year of NAC OR 11 th Grade Pass OR 10 th Grade pass with 1-year of relevant experience Or 8 th Grade pass with 3-year of relevant experience Or Previous relevant qualification of NSQF level 3 with 1.5 year of relevant experience Minimum Age - 18 years	Total: 510 Hrs Theory: 90 hrs, Practical: 270 Hrs., ES: 60 Hrs., OJT:90 Hrs.	3.5	Senior Storage Technician- Green Hydrogen

VII. Sector Council for Person with Disability

SECTOR- PwD, (27 New Qualifications)

Sno.	Name of Qualifications	Occupation	Entry Requirement	Notional Hours	NSQF level	Progression
1	Automotive Packing Assistant (Divyangjan)-LD	Supply Chain Management	Grade 8 pass OR 5th grade pass with 3 year relevant Experience OR Previous relevant Qualification of NSQF Level 1	TOTAL: 300 Hrs Theory 90 Hrs Practical 180 Hrs ES 30 Hrs	2	Material Stores Operator
			*5th grade pass with no experience	<i>Additional OJT of 12 Months</i>		
2	Automotive Packing Assistant (Divyangjan)-SHI	Supply Chain Management	Grade 8 pass OR 5th grade pass with 3 year relevant Experience OR Previous relevant Qualification of NSQF Level 1	TOTAL: 390 Hrs Theory 150 Hrs Practical 210 Hrs ES 30 Hrs	2	Material Stores Operator
			*5th grade pass with no experience	<i>Additional OJT of 12 Months</i>		
3	Automotive Packing Assistant (Divyangjan)-LV	Supply Chain Management	Grade 8 pass OR 5th grade pass with 3 year relevant Experience OR Previous relevant Qualification of NSQF Level 1	TOTAL: 480 Hrs Theory 150 Hrs Practical 300 Hrs ES 30 Hrs	2	Material Stores Operator
			*5th grade pass with no experience	<i>Additional OJT of 12 Months</i>		

4	Automotive Packing Assistant (Divyangjan)-VI	Supply Chain Management	Grade 8 pass OR 5th grade pass with 3 year relevant Experience OR Previous relevant Qualification of NSQF Level 1	TOTAL: 510 Hrs Theory 150 Hrs Practical 330 Hrs ES 30 Hrs	2	Material Stores Operator
			*5th grade pass with no experience	<i>Additional OJT of 12 Months</i>		
5	Barista Executive (Divyangjan)-LD	Food and Beverage Service	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling	TOTAL: 600 Hrs Theory 120 Hrs Practical 150 Hrs OJT(Man) 270 Hrs ES 60 Hrs	4	Barista Specialist

			<p>OR</p> <p>Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience</p> <p>*10th Grade Pass with no experience</p> <p>In addition to Notional Hours ,OJT of 8 months</p> <p>*8th grade pass with no experience</p> <p>In addition to Notional Hours ,OJT of 16 months</p> <p>*Previous relevant Qualification of NSQF Level 3.0 with No experience</p> <p>In addition to Notional Hours ,OJT of 12 months</p>			
6	Barista Executive (Divyangjan)- SHI	Food and Beverage Service	<p>12th grade pass</p> <p>OR</p> <p>11th grade pass with 1 year experience</p> <p>OR</p> <p>Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma</p> <p>OR</p> <p>10th grade pass plus 1-year NTC/ NAC plus 1 year experience</p> <p>OR</p> <p>10th Grade pass with 2 year NTC (after 10th)</p> <p>OR</p> <p>10th Grade Pass with 2 year relevant experience</p> <p>OR</p> <p>8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience</p> <p>OR</p>	<p>TOTAL 690 Hrs</p> <p>Theory 180 Hrs</p> <p>Practical 180 Hrs</p> <p>OJT(Man) 270 Hrs</p> <p>ES 60 Hrs</p>	<p>4</p>	Barista Specialist

			10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience			
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
7	Barista Executive (Divyangjan)-LV	Food and Beverage Service	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR	TOTAL 810 Hrs Theory 150 Hrs Practical 330 Hrs OJT(Man) 270 Hrs ES 60 Hrs	4	Barista Specialist

			8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience			
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
8	Barista Executive (Divyangjan)-VI	Food and Beverage Service	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR	TOTAL 840 Hrs Theory 150 Hrs Practical 360 Hrs OJT(Man) 270 Hrs ES 60 Hrs	4	Barista Specialist

			<p>10th Grade Pass with 2 year relevant experience</p> <p>OR</p> <p>8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience</p> <p>OR</p> <p>10th grade pass and pursuing continuous schooling</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience</p>			
			<p>*10th Grade Pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months		
			<p>*8th grade pass with no experience</p>	In addition to Notional Hours ,OJT of 16 months		
			<p>*Previous relevant Qualification of NSQF Level 3.0 with No experience</p>	In addition to Notional Hours ,OJT of 12 months		
9	Software Programmer (Divyangjan)-LD	Application Development	<p>12th grade pass</p> <p>OR</p> <p>11th grade pass with 1 year experience</p> <p>OR</p> <p>Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma</p> <p>OR</p> <p>10th grade pass plus 1-year NTC/ NAC plus 1 year experience</p> <p>OR</p>	<p>TOTAL Max 930</p> <p>TOTAL Min 390 Hrs (with 1 Elective)</p> <p>Theory 36 Hrs</p> <p>Practical 24 Hrs</p> <p>ES 60 Hrs</p> <p>Elective1 120</p> <p>Theory 60</p>	4	Senior Programmer – Software Development

			10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience	Practical 60 OJT (Man) 150 Elective2 120 Theory 60 Practical 60 OJT (Man) 150 Elective3 120 Theory 60 Practical 60 OJT (Man) 150		
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
10	Software Programmer (Divyangjan)- SHI	Application Development	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR	TOTAL Max 1050 TOTAL Min 510 Hrs (with 1 Elective) Theory 96 Hrs Practical 84 Hrs ES 60 Hrs	4	Senior Programmer – Software Development

			10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience	Elective1 120 Theory 60 Practical 60 OJT (Man) 150 Elective2 120 Theory 60 Practical 60 OJT (Man) 150 Elective3 120 Theory 60 Practical 60 OJT (Man) 150		
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
11	Software Programmer (Divyangjan)-LV	Application Development	12th grade pass OR 11th grade pass with 1 year experience OR	TOTAL Max 1290 TOTAL Min 690 Hrs (with 1 Elective) Theory 93 Hrs Practical 237 Hrs	4	Senior Programmer – Software Development

		<p>Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma</p> <p>OR</p> <p>10th grade pass plus 1-year NTC/ NAC plus 1 year experience</p> <p>OR</p> <p>10th Grade pass with 2 year NTC (after 10th)</p> <p>OR</p> <p>10th Grade Pass with 2 year relevant experience</p> <p>OR</p> <p>8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience</p> <p>OR</p> <p>10th grade pass and pursuing continuous schooling</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience</p>	<p>ES 60 Hrs</p> <p>Elective1 150</p> <p>Theory 60</p> <p>Practical 90</p> <p>OJT (Man) 150</p> <p>Elective2 150</p> <p>Theory 60</p> <p>Practical 90</p> <p>OJT (Man) 150</p> <p>Elective3 150</p> <p>Theory 60</p> <p>Practical 90</p> <p>OJT (Man) 150</p>			
		*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months			
		*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months			
		*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months			
12		Application Development	12th grade pass OR	TOTAL Max 1320	4	Senior Programmer – Software Development

<p>Software Programmer (Divyangjan)-VI</p>	<p>11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience</p>	<p>TOTAL Min 720 Hrs (with 1 Elective) Theory 96 Hrs Practical 264 Hrs ES 60 Hrs Elective1 150 Theory 60 Practical 90 OJT (Man) 150 Elective2 150 Theory 60 Practical 90 OJT (Man) 150 Elective3 150 Theory 60 Practical 90 OJT (Man) 150</p>	<p>In addition to Notional Hours ,OJT of 8 months In addition to Notional Hours ,OJT of 16 months In addition to Notional Hours ,OJT of 12 months</p>

13	Spice Processing Technician (Divyangjan)-LD	Processing-Packaged Foods	10th Grade pass OR Grade 9 with one year of experience OR Grade 8 with two years of (NTC/ NAC) after 8th OR 8th grade pass with 2-year relevant Experience OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject. OR 5th grade pass with 5-year relevant Experience OR Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience	TOTAL 390 Hrs Theory 102 Hrs Practical 228 Hrs OJT(Man) 30 ES 30 Hrs	3	Convenience Food Maker-Ready To Eat and Instant Food
			*8th Grade pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*5th grade pass with no experience	In addition to Notional Hours ,OJT of 20 months		
			*Previous relevant Qualification of NSQF Level 2 with no experience	In addition to Notional Hours, OJT of 12 months		
14	Spice Processing Technician (Divyangjan)-SHI	Processing-Packaged Foods	10th Grade pass OR Grade 9 with one year of experience OR Grade 8 with two years of (NTC/ NAC) after 8th	TOTAL 480 Hrs Theory 162 Hrs Practical 258 Hrs OJT(Man) 30 ES 30 Hrs	3	Convenience Food Maker-Ready To Eat and Instant Food

			<p>OR 8th grade pass with 2-year relevant Experience</p> <p>OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.</p> <p>OR 5th grade pass with 5-year relevant Experience</p> <p>OR Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>			
			<p>*8th Grade pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months		
			<p>*5th grade pass with no experience</p>	In addition to Notional Hours ,OJT of 20 months		
			<p>*Previous relevant Qualification of NSQF Level 2 with no experience</p>	In addition to Notional Hours, OJT of 12 months		
15	Spice Processing Technician (Divyangjan)-LV	Processing-Packaged Foods	<p>10th Grade pass</p> <p>OR Grade 9 with one year of experience</p> <p>OR Grade 8 with two years of (NTC/ NAC) after 8th</p> <p>OR 8th grade pass with 2-year relevant Experience</p> <p>OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.</p>	<p>TOTAL 570 Hrs</p> <p>Theory 129 Hrs</p> <p>Practical 381 Hrs</p> <p>OJT(Man) 30</p> <p>ES 30 Hrs</p>	<p>3</p>	Convenience Food Maker-Ready To Eat and Instant Food

			<p>OR</p> <p>5th grade pass with 5-year relevant Experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>			
			<p>*8th Grade pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months		
			<p>*5th grade pass with no experience</p>	In addition to Notional Hours ,OJT of 20 months		
			<p>*Previous relevant Qualification of NSQF Level 2 with no experience</p>	In addition to Notional Hours, OJT of 12 months		
16	Spice Processing Technician (Divyangjan)-VI	Processing-Packaged Foods	<p>10th Grade pass</p> <p>OR</p> <p>Grade 9 with one year of experience</p> <p>OR</p> <p>Grade 8 with two years of (NTC/ NAC) after 8th</p> <p>OR</p> <p>8th grade pass with 2-year relevant Experience</p> <p>OR</p> <p>Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.</p> <p>OR</p> <p>5th grade pass with 5-year relevant Experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>	<p>TOTAL 600 Hrs</p> <p>Theory 132 Hrs</p> <p>Practical 408 Hrs</p> <p>OJT(Man) 30</p> <p>ES 30 Hrs</p>	3	Convenience Food Maker-Ready To Eat and Instant Food

			<p>*8th Grade pass with no experience</p> <p>*5th grade pass with no experience</p> <p>*Previous relevant Qualification of NSQF Level 2 with no experience</p>	<p>In addition to Notional Hours ,OJT of 8 months</p> <p>In addition to Notional Hours ,OJT of 20 months</p> <p>In addition to Notional Hours, OJT of 12 months</p>		
17	Telehealth Service Coordinator (Divyangjan)-LD	Healthcare Technologies	<p>12th grade pass</p> <p>OR</p> <p>11th grade pass with 1 year experience</p> <p>OR</p> <p>Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma</p> <p>OR</p> <p>10th grade pass plus 1-year NTC/ NAC plus 1 year experience</p> <p>OR</p> <p>10th Grade pass with 2 year NTC (after 10th)</p> <p>OR</p> <p>10th Grade Pass with 2 year relevant experience</p> <p>OR</p> <p>8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience</p> <p>OR</p> <p>10th grade pass and pursuing continuous schooling</p> <p>OR</p>	<p>TOTAL 1050 Hrs</p> <p>Theory 240 Hrs</p> <p>Practical 270 Hrs</p> <p>OJT (Man) 480 Hrs</p> <p>ES 60 Hrs</p>	4	Hospital Front Desk Coordinator

			Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience			
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
18	Telehealth Service Coordinator (Divyangjan)-LV	Healthcare Technologies	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR	TOTAL 1440 Hrs Theory 300 Hrs Practical 600 Hrs OJT (Man) 480 Hrs ES 60 Hrs	4	Hospital Front Desk Coordinator

			10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience			
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
19	Telehealth Service Coordinator (Divyangjan)-VI	Healthcare Technologies	12th grade pass OR 11th grade pass with 1 year experience OR Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR	TOTAL 1470 Hrs Theory 300 Hrs Practical 630 Hrs OJT (Man) 480 Hrs ES 60 Hrs	4	Hospital Front Desk Coordinator

			8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience			
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
20	Traditional Sweet and Savoury Product Maker (Divyangjan)-LD	Packaged foods	10th Grade pass OR Grade 9 with one year of experience OR Grade 8 with two years of (NTC/ NAC) after 8th OR 8th grade pass with 2-year relevant Experience OR Grade 8 pass and pursuing continuous schooling in regular school with vocational subject. OR 5th grade pass with 5-year relevant Experience	TOTAL 390 Hrs Theory 125 Hrs Practical 235 Hrs ES 30 Hrs	3	Supervisor - Packaged Food

			<p>OR</p> <p>Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>			
			<p>*8th Grade pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months		
			<p>*5th grade pass with no experience</p>	In addition to Notional Hours ,OJT of 20 months		
			<p>*Previous relevant Qualification of NSQF Level 2 with no experience</p>	In addition to Notional Hours, OJT of 12 months		
21	Traditional Sweet and Savoury Product Maker (Divyangjan)- SHI	Packaged foods	<p>10th Grade pass</p> <p>OR</p> <p>Grade 9 with one year of experience</p> <p>OR</p> <p>Grade 8 with two years of (NTC/ NAC) after 8th</p> <p>OR</p> <p>8th grade pass with 2-year relevant Experience</p> <p>OR</p> <p>Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.</p> <p>OR</p> <p>5th grade pass with 5-year relevant Experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>	<p>TOTAL 480 Hrs</p> <p>Theory 185 Hrs</p> <p>Practical 265 Hrs</p> <p>ES 30 Hrs</p>	3	Supervisor - Packaged Food
			<p>*8th Grade pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months		

			<p>*5th grade pass with no experience</p> <p>*Previous relevant Qualification of NSQF Level 2 with no experience</p>	<p>In addition to Notional Hours ,OJT of 20 months</p> <p>In addition to Notional Hours, OJT of 12 months</p>		
22	Traditional Sweet and Savoury Product Maker (Divyangjan)-LV	Packaged foods	<p>10th Grade pass</p> <p>OR</p> <p>Grade 9 with one year of experience</p> <p>OR</p> <p>Grade 8 with two years of (NTC/ NAC) after 8th</p> <p>OR</p> <p>8th grade pass with 2-year relevant Experience</p> <p>OR</p> <p>Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.</p> <p>OR</p> <p>5th grade pass with 5-year relevant Experience</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience</p>	<p>TOTAL 600 Hrs</p> <p>Theory 152 Hrs</p> <p>Practical 418 Hrs</p> <p>ES 30 Hrs</p>	3	Supervisor - Packaged Food
			*8th Grade pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*5th grade pass with no experience	In addition to Notional Hours ,OJT of 20 months		
			*Previous relevant Qualification of NSQF Level 2 with no experience	In addition to Notional Hours, OJT of 12 months		

23	Traditional Sweet and Savoury Product Maker (Divyangjan)-VI	Packaged foods	10th Grade pass	TOTAL 630 Hrs Theory 155 Hrs Practical 445 Hrs ES 30 Hrs	3	Supervisor - Packaged Food
			OR			
			Grade 9 with one year of experience			
			OR			
24	Baking Technician/ Operative (Divyangjan)-LV	Processing	Grade 8 with two years of (NTC/ NAC) after 8th	TOTAL 600 Hrs Theory 132 Hrs Practical 408 Hrs ES 60 Hrs	4	Plant Baker (Level 5) Baking Technician (Level 4)
			OR			
			8th grade pass with 2-year relevant Experience			
			OR	TOTAL 600 Hrs Theory 132 Hrs Practical 408 Hrs ES 60 Hrs	4	Plant Baker (Level 5) Baking Technician (Level 4)
			Grade 8 pass and pursuing continuous schooling in regular school with vocational subject.			
			OR			
			5th grade pass with 5-year relevant Experience	TOTAL 600 Hrs Theory 132 Hrs Practical 408 Hrs ES 60 Hrs	4	Plant Baker (Level 5) Baking Technician (Level 4)
			OR			
			Previous relevant Qualification of NSQF Level 2 with 3-year relevant Experience			
			*8th Grade pass with no experience	In addition to Notional Hours ,OJT of 8 months	4	Plant Baker (Level 5) Baking Technician (Level 4)
			*5th grade pass with no experience			
			*Previous relevant Qualification of NSQF Level 2 with no experience			

			<p>OR</p> <p>10th grade pass plus 1-year NTC/ NAC plus 1 year experience</p> <p>OR</p> <p>10th Grade pass with 2 year NTC (after 10th)</p> <p>OR</p> <p>10th Grade Pass with 2 year relevant experience</p> <p>OR</p> <p>8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience</p> <p>OR</p> <p>10th grade pass and pursuing continuous schooling</p> <p>OR</p> <p>Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience</p>		
			<p>*10th Grade Pass with no experience</p>	In addition to Notional Hours ,OJT of 8 months	
			<p>*8th grade pass with no experience</p>	In addition to Notional Hours ,OJT of 16 months	
			<p>*Previous relevant Qualification of NSQF Level 3.0 with No experience</p>	In addition to Notional Hours ,OJT of 12 months	
25	Baking Technician/ Operative (Divyangjan)-VI	Processing	<p>12th grade pass</p> <p>OR</p> <p>11th grade pass with 1 year experience</p> <p>OR</p>	<p>TOTAL 630 Hrs</p> <p>Theory 135 Hrs</p> <p>Practical 435 Hrs</p>	<p>4</p> <p>Plant Baker (Level 5) Baking Technician (Level 4)</p>

			Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass plus 1-year NTC/ NAC plus 1 year experience OR 10th Grade pass with 2 year NTC (after 10th) OR 10th Grade Pass with 2 year relevant experience OR 8th grade pass plus 2-year NTC (after 8th) plus 1 Year NAC/CITS with 1 year of relevant experience OR 10th grade pass and pursuing continuous schooling OR Previous relevant Qualification of NSQF Level 3.0 with 3 year of relevant experience	ES 60 Hrs		
			*10th Grade Pass with no experience	In addition to Notional Hours ,OJT of 8 months		
			*8th grade pass with no experience	In addition to Notional Hours ,OJT of 16 months		
			*Previous relevant Qualification of NSQF Level 3.0 with No experience	In addition to Notional Hours ,OJT of 12 months		
26	Indian Sign Language Basic	Training Delivery	5th Grade pass pursuing regular school education (6th Grade onwards)	TOTAL 330 Hrs	3	Indian Sign Language Interpreter (NSQF Level - 4)

				Theory 60 Hrs Practical 210 Hrs ES 60 Hrs		
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VIII. Centurion University of Technology and Management

A. SECTOR – Food Processing, (01 New Qualification)

Sl no	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Milk Testing Facility Supervisor	Quality Assurance	<p>Completed 2nd year of 3 year/4 year UG in Agriculture/Dairy technology/Dairy Science/Dairy Product Management and other relevant fields</p> <p>OR</p> <p>Completed 3 year Diploma after 10th with 1 year experience in Agriculture/Dairy technology/Dairy Science/Dairy Product Management and other relevant fields</p> <p>OR</p> <p>12th Grade Pass with 1 year of NTC/NAC and 1 year experience in Agriculture/Dairy technology/Dairy Science/Dairy Product Management and other relevant fields</p> <p>12th Grade pass with 2 year experience in Agriculture/Dairy technology/Dairy Science/Dairy Product Management and other relevant fields</p> <p>OR</p> <p>Previous relevant qualification of NSQF level 4 with 3 year experience in relevant fields</p>	TOTAL - 510 Hrs Theory - 120 hrs Practical - 240 Hrs OJT - 90 Hrs ES - 60 Hrs	5	VERTICAL - Milk testing Facility Manager

B. SECTOR – Environmental Science, (01 New Qualification)

Sl no	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Paper Recycling Supervisor	Renewable Energy	<p>Completed 3 year Diploma after 10th with 1 year experience in paper making and other relevant fields</p> <p>OR</p> <p>12th Grade pass with 1 year NTC/NAC and 1 year relevant experience in paper making and other relevant fields</p> <p>OR</p> <p>Completed 1st year of 3 year/4 year UG with 1 year relevant experience in paper making and other relevant fields</p> <p>OR</p> <p>12th Grade pass with 2 year experience in paper making and other relevant fields</p> <p>OR</p> <p>Previous relevant qualification of NSQF level 4 with 3 year experience in relevant fields</p>	TOTAL - 600 Hrs Theory - 160 hrs Practical - 270 Hrs OJT - 110 Hrs ES - 60 Hrs	5	VERTICAL - Paper Recycling Manager

IX. NTTF

SECTOR – Electronics and Hardware, (09 New Qualifications)

S. No	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
1	Fitter- Electrical and Electronics	Assembly & Fitting	Minimum 10th Pass OR 8th pass + 2 years ITI in Electrical, Electronics and Instrument technician and relevant trades.	Total - 1200 h Theory - 420 h Practical - 135 h OJT - 585 h Employability Skill - 60 h	3.5	Academic Progression: Advanced Certificate - Technician Electrical and Electronics Assembly Post Diploma, B. VoC and B.Tech Degree Course in Relevant field
2	Technician - Electrical and Electronics Assembly	Assembly & Fitting	12th Pass (with Mathematics) OR 10th + 2 years ITI in the following trades: Electrical, Electronics and Instrument technician and relevant trades. OR 10th + 2 years diploma /pursuing 3rd of diploma in relevant trade OR Certificate - Fitter- Electrical and Electronics Equipment. (Level 3.5) from NTTF	Total - 1200 h Theory - 420 h Practical - 150 h OJT - 570 h Employability Skill - 60h	4	Academic Progression: Diploma in Electrical Equipment Manufacturing Post Diploma, B. VoC and B.Tech Degree Course in Relevant field
3	Senior Technician - Electrical Equipment Manufacturing	Manufacturing & Assembly	Technician- Electrical and Electronics Assembly/Maintenance. Level 4.0 from NTTF	Total - 1200 h Theory - 420 h Practical - 105 h OJT - 615 h Employability Skill - 60 h	4.5	Professional Progression: After Completion of 3 years of Full Time Programme and after 3 years of Industry Experience the Job Holder can work as Line Supervisor, Assistant engineer, Engineer, Team leader. Academic Progression:Post Diploma, Degree Course in Relevant areas.

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4	Assistant Technician-Electronics Assembly	Assembly and fitting	Minimum 10th Pass OR 8th pass + 2 years ITI in Technician Electronics System, Repair of electronic systems, Mechanic Consumer Electronic Appliances, Technician Power Electronic Systems	Total - 1200 h Theory - 480 h Practical - 570 h Employability skill -60 h OJT - 90h	3.5	Academic Progression: Advance Certificate –Technician Electronics and Instrumentation Diploma –Electronics and Embedded Systems Post Diploma B VoC B.Tech Degree Course in Relevant Areas.
5	Technician - Electronics and Instrumentation	Testing and developing	12th Pass with Mathematics OR 10th + 2 years ITI in the following trades: Technician Electronics System Design and Repair, Mechanic Consumer Electronic Appliances, Maintenance Mechanic (Chemical Plant), Technician Power Electronic Systems OR 10th + 2 years diploma /pursuing 3rd of diploma in relevant trade OR Certificate- Assistant Technician Electronics Assembly Level 3.5 From NTTF	Total - 1200 h Theory - 480 h Practical -570 h OJT - 90h Employability skill - 60 h	4.0	Academic Progression: Diploma - Electronics Engineering and Embedded Systems Post Diploma B VoC B.Tech Degree Course in Relevant Areas.
6	Senior Technician - Electronics Engineering and Embedded Systems	Design, Testing & installation	Advance Certificate – Technician Electronics and Instrumentation Level 4.0 From NTTF	Total - 1380 h Theory - 390 h Practical - 600 h OJT - 330 h Employability skill - 60 h	4.5	Professional Progression: After Completion of Course and after 3 years of Industry Experience the Job Holder can work as Test Engineer, R&D Engineer, Servicing Engineer and Maintenance Engineer. Academic Progression: Post Diploma, B VoC, and B Tech Degree Course in Relevant areas

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7	Assistant Technician - Electrical	Wiring	Minimum 10th Pass OR 8th standard + 2 years ITI as Electrician, Electrician Power Distribution	Total - 1200 h Theory - 480 h Practical - 570 h OJT - 90 h Employability Skill - 60 h	3.5	Academic Progression: Advance Certificate –Technician Industrial Electrical. Post Diploma B VoC B.Tech Degree Course in Relevant Areas.
8	Technician Industrial Electrical	Installation & Repair	12th Pass with Mathematics OR 10th + 2 years ITI in the following trades: Electrician, Electrician Power Distribution OR 10th + 2 years diploma /pursuing 3rd of diploma in relevant trade OR Certificate-Assistant Technician Electrical Level 3.5 from NTTF	Total - 1200 h Theory - 540 h Practical - 510 h OJT - 90 h Employability Skill - 60 h	4.0	Academic Progression: Diploma - Electrical and Electronics Engineering Post Diploma B VoC B.Tech Degree Course in Relevant Areas.
9	Technician Industrial Electrical	Installation and Maintenance	Advance Certificate – Technician Industrial Electrical Level 4.0 from NTTF	Total - 1350 h Theory - 450 h Practical - 540 h OJT - 300 h Employability Skill - 60 h	4.5	Professional Progression: After Completion of 3 years of Full Time Program me and after 3 years of Industry Experience the Job holder can work as Supervisor, Maintenance Engineer, and Installation Engineer of Electrical Equipment in Industries, Power Generation, and Transmission and Distribution areas. Academic Progression: Post Diploma, B. VoC and B. Tech Degree Course in Relevant areas.

Summary of NOS for NSQF Alignment and Approval

AWARDING BODY

I. NASSCOM

SECTOR – IT-ITeS, (10 New NOs)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level
1	Overview of Robotic Process Automation	Robotic Process Automation	<p>12th Grade Pass with a background in Computers and Programming OR 10th Grade Pass with 2 Years of relevant experience* OR Previous Relevant qualification of NSQF level 3 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT/Computer operation/Programming (e.g. IT Helpdesk assistant, Data entry operator, Data Annotator, etc.) The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 45 Hours Theory: 15 Hours Practical: 30 Hours</p>	4
2	IT Marketing Foundational Course	IT Marketing	<p>12th Grade Pass with a background in Computers and Programming OR 10th Grade Pass with 2 Years of relevant experience* OR Previous Relevant qualification of NSQF level 3 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT/Computer operation/Programming (e.g. IT Helpdesk assistant, Data entry operator, Data Annotator, etc.) The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 45 Hours Theory: 15 Hours Practical: 30 Hours</p>	4

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3	Blockchain Foundation	Blockchain	<p>12th Grade Pass with a background in Computers and Programming OR 10th Grade Pass with 2 Years of relevant experience* OR Previous Relevant qualification of NSQF level 3 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT/Computer operation/Programming (e.g. IT Helpdesk assistant, Data entry operator, Data Annotator, etc.) The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 45 Hours</p> <p>Theory: 15 Hours Practical: 30 Hours</p>	4
4	Cybersecurity Foundation	Cybersecurity	<p>12th Grade Pass with a background in Computers and Programming OR 10th Grade Pass with 2 Years of relevant experience* OR Previous Relevant qualification of NSQF level 3 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT/Computer operation/Programming (e.g. IT Helpdesk assistant, Data entry operator, Data Annotator, etc.) The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 45 Hours</p> <p>Theory: 15 Hours Practical: 30 Hours</p>	4
5	Information Security Policy Review	Cybersecurity	<p>Completed 2nd year of UG OR Completed 3 Year diploma after 10th with 1 year of relevant experience* OR Previous Relevant qualification of NSQF level 4 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT/Computer operations/IT infrastructure The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 60 Hours</p> <p>Theory: 30 Hours Practical: 30 Hours</p>	5
6	Information Security Device	Cybersecurity	<p>Completed 2nd year of UG OR Completed 3 Year diploma after 10th with 1 year of relevant experience*</p>	<p>Total: 60 Hours</p>	5

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	Management		OR Previous Relevant qualification of NSQF level 4 with 3 years of relevant experience* *Relevant Experience in job roles related to IT/Computer operations/IT infrastructure The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.	Theory: 30 Hours Practical: 30 Hours	
7	Information security policy audit	Cybersecurity	Completed 2nd year of UG OR Completed 3 Year diploma after 10th with 1 year of relevant experience* OR Previous Relevant qualification of NSQF level 4 with 3 years of relevant experience* *Relevant Experience in job roles related to IT/Computer operations/IT infrastructure The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.	Total: 45 Hours Theory: 15 Hours Practical: 30 Hours	5
8	Application security testing	Cybersecurity	Completed 2nd year of UG OR Completed 3 Year diploma after 10th with 1 year of relevant experience* OR Previous Relevant qualification of NSQF level 4 with 3 years of relevant experience* *Relevant Experience in job roles related to IT/Computer operations/IT infrastructure The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.	Total: 90 Hours Theory: 30 Hours Practical: 60 Hours	5
9	Concepts of Natural Language Processing	Artificial Intelligence & Bigdata Analytics	Pursuing first year of 2 year PG Program after completing 3 year UG degree OR Completed 4 Year UG (In case of 4 year UG with honors/honors with research) OR Previous Relevant qualification of NSQF level 5 with 3 years of relevant experience*	Total: 90 Hours Theory: 30 Hours Practical: 60 Hours	6

			<p>*Relevant Experience in job roles related to IT, AI ,BDA and Programming The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>		
10	Concepts of Computer vision	Artificial Intelligence & Bigdata Analytics	<p>Pursuing first year of 2 year PG Program after completing 3 year UG degree (or) Completed 4 Year UG (In case of 4 year UG with honors/honors with research) (or) Previous Relevant qualification of NSQF level 5 with 3 years of relevant experience*</p> <p>*Relevant Experience in job roles related to IT, AI ,BDA and Programming The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications.</p>	<p>Total: 90 Hours Theory: 30 Hours Practical: 60 Hours</p>	6

II. Textile Sector Skill Council

SECTOR – Textile & Handlooms, (02 New NOS)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level
1	Woven Fabric Testing - Physical	Quality Control - Weaving	<p>Pursuing 1st year of 3-year/ 4-years UG and continuing education with no experience (or) Pursuing 3rd year of 3-year diploma after 10th and continuing education with no experience (or) 12th grade pass with 1 year of relevant experience (or) Previous relevant Qualification of NSQF Level 4 with 1.5 years of relevant experience</p>	<p>Total: 30 Hrs. Theory: 09 Hours Practical: 21 Hours</p>	4.5
2	Weaving Process Evaluation	Quality Control -	Pursuing 2nd year of 3-year/ 4-years UG and continuing education with no experience (or)	<p>Total: 60 Hrs.</p>	5

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		Weaving	Completed 3-year diploma after 10th with 1 year of relevant experience (or) 12th grade pass with 2 years of relevant experience (or) Previous relevant Qualification of NSQF Level 4.5 with 1.5 years of relevant experience	Theory: 15 Hours Practical: 45 Hours	
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Summary of Micro Credentials for NSQF Alignment and Approval

AWARDING BODY

I. DWSSC

SECTOR – Domestic Workers, (2 New Micro Credentials)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level
1	Basics of Menstrual Hygiene Management	Health and Hygiene	No formal education	Total: 15 Hrs Theory: 07 Hrs Practical: 08 Hrs	2
2	Basics of CT/PT (Community Toilet/Public Toilet) Hygiene maintenance	Housekeeping	No formal education	Total: 30 Hrs Theory: 10 Hrs Practical: 20 Hrs	2

II. Hydrocarbon Sector Skill Council

SECTOR – Hydrocarbon, (01 New Micro Credential)

S. No	Name of qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level
1	Fundamental of Disaster	Health Safety and	Grade 8 with two years of (NTC/NAC) after 8th OR	Total: 30 hours	3

	<p>Management – (Oil & Gas) Micro credential</p>	<p>Environment (HSE common)</p>	<p>Grade 10 pass OR Grade 8 pass and pursuing continuous schooling in a regular school OR 9th grade pass 1- year of relevant experience OR 8th grade pass 2- year of relevant experience OR 5th grade pass 5-years relevant experience Minimum Age - 18 years"</p>	<p>Theory: 24 hours Practical: 06 Hours</p>	
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Summary of Qualifications submitted for NSQF alignment by Armed Forces Awarding Bodies

1. (A). Indian Air Force (24 New Qualifications)

Sr. No.	Name of Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Aircraft Power Plant Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.	Total: 1350 Theory: 1013 Practical: 238 OJT: 99	4.5	Senior Technician Advance Technician Manager/USTAD
02	Aircraft Power Plant Senior Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English. And Achieved Level of 4.5 with Academic credits OR Achieved Level of 4.5 with Experience up to 8 years in IAF (Kaushal Praman Patra)	Total: 1200 Theory: 403 Practical: 660 OJT: 137	5.0	Advance Technician Manager/USTAD
03	Aircraft Power Plant Advance Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English. And Achieved Level of 5.0 with Academic credits OR Achieved Level of 5.0 with Experience from 8 to 15 years in IAF (Kaushal Praman Patra)	Total: 810 Theory: 178 Practical: 426 OJT: 206	5.5	Manager/USTAD
04	Aircraft Structure Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.	Total: 1170 Theory: 867 Practical: 197	4.5	Senior Technician Advance Technician

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				OJT: 106		Manager/USTAD
05	Aircraft Structure Senior Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English. And Achieved Level of 4.5 with Academic credits OR Achieved Level of 4.5 with Experience up to 8 years in IAF (Kaushal Praman Patra)	Total: 1320 Theory: 498 Practical: 738 OJT: 84	5.0	Advance Technician Manager/USTAD
06	Aircraft Structure Advance Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English. And Achieved Level of 5.0 with Academic credits OR Achieved Level of 5.0 with Experience from 08 years to 15 years in IAF (Kaushal Praman Patra)	Total: 840 Theory: 335 Practical: 159 OJT: 346	5.5	Manager/USTAD
07	Aircraft Safety Equipment Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.	Total: 1320 Theory: 659 Practical: 551 OJT: 110	4.5	Senior Technician Advance Technician Manager/USTAD
08	Aircraft Safety Equipment Senior Technician	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English. And Achieved Level of 4.5 with Academic credits OR Achieved Level of 4.5 with Experience up to 8 years in IAF (Kaushal Praman Patra)	Total: 630 Theory: 344 Practical: 238 OJT: 48	5.0	Advance Technician Manager/USTAD

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09	Aircraft Safety Equipment Advance Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p> <p>And</p> <p>Achieved Level of 5.0 with Academic credits</p> <p>OR</p> <p>Achieved Level of 5.0 with Experience from 08 up to 15 years in IAF (Kaushal Praman Patra)</p>	Total: 1380 Theory: 676 Practical: 604 OJT: 100	5.5	Manager/USTAD
10	Fire Fighting and Aerodrome Safety Associate	Aerodrome Safety	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1800 Theory: 484 Practical: 728 OJT: 588	4.5	Senior Associate Assistant Manager Manager / USTAD
11	Logistics Associate (Provisioning and Storage)	Logistics	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English	Total: 2100 Theory: 795 Practical: 525 OJT: 780	4.5	Senior Associate Assistant Manager Manager / USTAD
12	Pay and Equipment Accounting Associate	Accounting	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 2100 Theory: 832 Practical: 488 OJT: 780	4.5	Senior Associate Assistant Manager Manager / USTAD
13	Physical Training and Conditioning Associate	Physical Training	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1500 Theory: 281 Practical: 203 OJT: 1016	4.5	Senior Associate Assistant Manager Manager / USTAD

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14	Security Associate (Administration)	Security	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1530 Theory: 366 Practical: 98 OJT: 1066	4.5	Senior Associate Assistant Manager Manager / USTAD
15	Meteorological Associate (Aerodrome)	Meteorology	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1560 Theory: 560 Practical: 647 OJT: 353	4.5	Senior Associate Assistant Manager Manager / USTAD
16	Aerodrome Safety Associate	Safety	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1530 Theory: 629 Practical: 158 OJT: 743	4.5	Senior Associate Assistant Manager Manager / USTAD
17	Integrated Air Surveillance Associate	Surveillance	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 2100 Theory: 753 Practical: 551 OJT: 796	4.5	Senior Associate Assistant Manager Manager / USTAD
18	Office Administration Associate	Office Management	Passed 12 th /equivalent examination in any stream / subjects approved by Central / State Education Boards with minimum 50% marks in aggregate and 50% marks in English.	Total: 1410 Theory: 461 Practical: 522 OJT: 427	4.5	Senior Associate Assistant Manager Manager / USTAD
19	Technician Electrical System &	Technician	Candidate should have passed 12 th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English	Total: 1710 Theory: 1180 Practical: 362	4.5	Senior Technician Advance Technician

	Equipment (Aviation)			OJT: 168		Manager/USTAD
20	Aircraft Electrical Senior Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p> <p>And</p> <p>Achieved Level of 4.5 with Academic credits</p> <p>OR</p> <p>Achieved Level of 4.5 with Experience up to 8 years in IAF (Kaushal Praman Patra)</p>	Total: 1170 Theory: 535 Practical: 476 OJT: 159	5.0	Advance Technician Manager/USTAD
21	Aircraft Electrical Advance Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p> <p>And</p> <p>Achieved Level of 5.0 with Academic credits</p> <p>OR</p> <p>Achieved Level of 5.0 with Experience from 08 years up to 15 years in IAF (Kaushal Praman Patra)</p>	Total: 840 Theory: 364 Practical: 381 OJT: 95	5.5	Manager/USTAD
22	Communication Technology Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p>	Total: 1320 Theory: 615 Practical: 502 OJT: 203	4.5	Senior Technician Advance Technician Manager/USTAD
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23	Senior Aircraft Electrical and Electronics Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English minimum 50% marks in aggregate and 50% marks in English.</p> <p>Or</p> <p>Passed 3 years' diploma course in engineering (Mechanical / Electrical /Electronics / Automobile / Computer Science / Instrumentation Technology / Information Technology) from</p>	Total: 870 Theory: 375 Practical: 337 OJT: 158	5.0	Advance Technician

			<p>a Govt recognized Polytechnic Institute with 50% marks in aggregate and 50% marks in English in Diploma course after 10th grade (or in Intermediate / Matriculation, if English is not a subject in Diploma Course)</p> <p>Or</p> <p>Passed 2 years vocational course with non-vocational subjects viz Physics and Mathematics from State Education Boards / Councils which are listed in CBSE with 50% marks in aggregate and 50% marks in English in Vocational course after 10th (or in Intermediate / Matriculation, if English is not a subject in Vocational Course)</p> <p>And</p> <p>Undergone Trade phase training and TETTRA at NSQF level 4.5 as an Aircraft Electrical and Electronics Technician with minimum 300 hrs of Experiential learning at level 4.5 and above</p>			
24	Advance Aircraft Electrical and Electronics Technician	Advance Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p> <p>Or</p> <p>Passed 3 years' diploma course in engineering (Mechanical / Electrical /Electronics / Automobile / Computer Science / Instrumentation Technology / Information Technology) from a Govt recognized Polytechnic Institute with 50% marks in aggregate and 50% marks in English in Diploma course (or in Intermediate / Matriculation, if English is not a subject in Diploma Course)</p> <p>Or</p> <p>Passed 2 years vocational course with non-vocational subjects viz Physics and Mathematics from State Education Boards / Councils which are listed in CBSE with 50% marks in aggregate and 50% marks in English in Vocational course (or in Intermediate / Matriculation, if English is not a subject in Vocational Course)</p> <p>And</p>	<p>Total: 870</p> <p>Theory: 443</p> <p>Practical: 318</p> <p>OJT: 109</p>	5.5	Manager/USTAD

			Undergone Skilling-I training and Operator level experience at NSQF level 5 as Senior Aircraft Electrical and Electronics Technician with minimum 300 hrs of Experiential learning at level 4.5 and 5 respectively			
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1. (B). Indian Air Force (01 Revised Qualifications)

1	Aircraft Electrical and Electronics Technician	Technician	<p>Candidate should have passed 12th /equivalent examination with Mathematics, Physics and English with minimum 50% marks in aggregate and 50% marks in English.</p> <p>Or</p> <p>Passed 3 years' diploma course in engineering (Mechanical / Electrical /Electronics / Automobile / Computer Science / Instrumentation Technology / Information Technology) from a Govt recognized Polytechnic Institute with 50% marks in aggregate and 50% marks in English in Diploma course after 10th grade (or in Intermediate / Matriculation, if English is not a subject in Diploma Course)</p> <p>Or</p> <p>Passed 2 years vocational course with non-vocational subjects viz Physics and Mathematics from State Education Boards / Councils which are listed in CBSE with 50% marks in aggregate and 50% marks in English in Vocational course after 10th grade (or in Intermediate / Matriculation, if English is not a subject in Vocational Course)</p>	Total: 1470 Theory: 668 Practical: 498 OJT: 304	4.5	Senior Technician Advance Technician Multidisciplinary
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2. Indian Army – Directorate General of Armoured Corps (03 New Qualifications)

S. No	Name of the Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Technician Automotive	Repair & Maintenance	12th class pass or equivalent with 4 years of relevant experience	Total: 1350 Hours (1230 excluding ES) Theory:595	4.5	VERTICAL Supervisor Automotive Repair and Maintenance

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				Practical: 280 OJT: 355 ES: 120		
02	Supervisor Radio Communication	Radio Communication	12th class pass or equivalent with 8 years of relevant experience OR Previous NSQF Level 4.5 (Technician Automotive) with four Years of relevant Experience	Total: 1350 Hours (1230 Excluding ES) Theory: 605 Practical: 320 OJT: 305 ES: 120	5	VERTICAL Assistant Manager Radio Communication
03	Assistant Manager Radio Communication	Radio Communication	12th class pass or equivalent with 12 years of relevant experience OR Previous NSQF Level 5 (Supervisor Radio Communication) with four Years of relevant Experience	Total: 1350 Hours (1230 excluding ES) Theory: 635 Practical: 80 OJT: 515 ES: 120	5.5	VERTICAL Manager Radio Communication

3. Indian Army – Directorate General of Army Air Defence (02 New Qualifications)

S. No	Name of the Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Senior Camp Supervisor	Mess Keeper	12th class pass or equivalent with 8 years of relevant experience OR Previous NSQF Level 4.5 (Camp Coordinator) with four Years of relevant Experience	TOTAL: 1350 HOURS (1230 excluding ES) Theory: 360 Practical: 390 OJT: 480 ES: 120	5	VERTICAL Guest House Supervisor

02	Guest House Supervisor	Mess Keeper	12th class pass or equivalent with 8 years of relevant experience OR Previous NSQF Level 4.5 (Guest House Coordinator) with four Years of relevant Experience	TOTAL: 1350 HOURS (1230Hrs excluding ES) Theory: 480 Practical: 375 OJT: 375 ES: 120	5	VERTICAL Senior Camp Supervisor
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4. Indian Army - Corps of Engr's (11 New Qualifications)

S. No	Name of the Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Welding Supervisor	Welding & Cutting	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Welder) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Welding Instructor
02	Supervisor - Wood & Carpentry	Wood & Carpentry	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Wood Work) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Wood and Carpentry

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03	Supervisor – Building Construction	Building Construction	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Building Construction) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Building Construction Instructor
04	Supervisor - Sheet Metal Works	Fabrication, Cutting & Welding	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Sheet Metal Works) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Sheet Metal Works
05	Supervisor - Conventional & CNC Machine Operations	Machining	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Conventional & CNC Machine Operations) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Conventional & CNC Machine Operations
06	Supervisor - Diesel Engine & Pumps	Service/ Maintenance	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Diesel Engines & Pumps) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Diesel Engines & Pumps

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07	Supervisor - Painting & Decorating	Painting & Decorating	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Painting & Decorating) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Painting & Decorating
08	Supervisor - Assembly and Plumbing	Assembly and Plumbing	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Assembly and Plumbing) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Assembly and Plumbing
09	Supervisor - Marine Engines	Assembly & Maintenance	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Marine Engines) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Marine Engines
10	Supervisor - Excavator Machine Operations	Excavator Machine Operations	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Technician- Excavator Machine Operations) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor - Excavator Machine Operations

11	Supervisor - Vessel Navigation	Vessel Navigation	12th class pass with 8 years of relevant experience OR Previous NSQF Level 4.5 (Senior Operator- Vessel Navigation) with four Years of relevant Experience	TOTAL: 1350 Hours (1230 Excluding ES) Theory: 210 Practical: 630 OJT: 390 ES: 120	5	VERTICAL Instructor -Vessel Navigation
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5. Indian Army - Corps of Electronics and Mechanical Engineers (06 New Qualifications)

S. No	Name of the Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Service Manager IT Hardware and Networking	IT Hardware and Network Service	12th class pass or equivalent with 12 years of relevant experience OR Previous NSQF Level 5 (Senior Technical Supervisor IT Hardware and Networking) with four Years of relevant Experience	TOTAL: 1200 HRS (1080 excluding ES) Theory: 360 Practical: 390 OJT: 375 ES: 120	5.5	VERTICAL Senior Service Manager IT Hardware and Networking
02	Senior Technical Supervisor IT Hardware and Networking	IT Hardware and Network Service	12th class pass or equivalent with 8 years of relevant experience OR Previous NSQF Level 4.5 (Technician IT Hardware and Network) with four Years of relevant Experience	TOTAL: 1200 HOURS (1080 excluding ES) Theory: 300 Practical: 420 OJT: 360 ES: 120	5	VERTICAL Service Manager IT Hardware and Networking
03	Maintenance Manager Electrician (Automotive)	Electrician Automotive	12th class pass or equivalent with 12 years of relevant experience OR	TOTAL: 690 HOURS (570 excluding ES)	5.5	VERTICAL Senior Maintenance Manager

	<u>Electives</u> Heavy and Tracked Vehicle Light and Heavy Vehicle	Previous NSQF Level 5 (Senior Technical Supervisor Electrician (Automotive)) with four Years of relevant Experience	Theory: 174 Practical: 317 OJT: 79 ES: 120 Electives: (a) Heavy and Tracked Vehicle Theory: 46 Practical: 238 OJT: 226 TOTAL: 510 HOURS (b) Light and Heavy Vehicle Theory: 93 Practical: 128 OJT: 289 TOTAL: 510 HOURS		Electrician (Automotive)
04	Senior Technical Supervisor Electrician (Automotive) <u>Electives</u> Heavy and Tracked Vehicle Light and Heavy Vehicle	Electrician Automotive 12th class pass or equivalent with 08 years of relevant experience OR Previous NSQF Level 4.5 (Technician Electrician) with four Years of relevant Experience	TOTAL: 780 HOURS (660 excluding ES) Theory: 177 Practical: 281 OJT: 202 ES: 120 Elective: (a) Heavy and Tracked Vehicle Theory: 86 Practical: 321 OJT: 163 TOTAL: 570 HOURS	5	VERTICAL INSTRUCTOR - Maintenance Manager Electrician (Automotive)

				(b) Light and Heavy Vehicle Theory: 204 Practical: 340 OJT: 26 TOTAL: 570 HOURS		
05	Maintenance Manager Automobile <u>Electives</u> Heavy and Tracked Vehicle Light and Heavy Vehicle	Automotive Service	12th class pass or equivalent with 12 years of relevant experience OR Previous NSQF Level 5 (Senior Technical Supervisor Automobile) with four Years of relevant Experience	TOTAL: 870 HOURS (750 excluding ES) Theory: 163 Practical: 407 OJT: 180 ES: 120 <u>Electives:</u> (a) Heavy and Tracked Vehicle Theory: 120 Practical: 300 OJT: 120 TOTAL: 540 HOURS (b) Light and Heavy Vehicle Theory: 74 Practical: 114 OJT: 232 TOTAL: 420 HOURS	5.5	VERTICAL Senior Maintenance Manager Automobile
06	Senior Technical Supervisor Automobile	Automotive Service	12th class pass with 8 years of relevant experience OR	TOTAL: 645 HOURS (525 excluding ES)	5	VERTICAL Maintenance Manager Automobile

<u>Electives</u>		Previous NSQF Level 4.5 (Junior Technician Automobile) with four Years of relevant Experience	Theory: 194 Practical: 300 OJT: 31 ES: 120 <u>Electives:</u> <u>(a) Heavy and Tracked Vehicle</u> Theory: 243 Practical: 560 OJT: 52 TOTAL: 855 HOURS <u>(b) Light and Heavy Vehicle</u> Theory: 175 Practical: 263 OJT: 177 TOTAL: 615 HOURS		
<u>Heavy and Tracked Vehicle</u>					
<u>Light and Heavy Vehicle</u>					

6. Indian Army – Remount and Veterinary Services (01 New Qualification)

S. No	Name of the Qualification	Occupation	Entry Requirement	Notional Hours	NSQF Level	Progression
01	Veterinary Laboratory Technician	Agriculture Allied Activity / Livestock Health Management	12th class with Physics, Chemistry and Biology	TOTAL: 1230 HOURS (1110 Excluding ES) Theory: 390 Practical: 520 OJT: 200 ES: 120	4.5	VERTICAL Veterinary Laboratory Supervisor

List of Qualifications not being considered for NSQC due to not meeting the compliance requirements

S. No	Awarding Body	Sector	Name of qualification	NSQF Level
1	DGT	Capital Goods	Industry Integrated Fitter	4
2	DGT	Capital Goods	Welding Technician	4
3	DGT	Capital Goods	Industrial Fitter	4
4	DGT	Power	Industry Integrated Electrician	4
5	DGT	Power	Industrial Electrician	4
6	National Institute of Wind Energy	Environmental Science	Wind Energy Analyst	5
7	Medhavi Skills University	Healthcare	Remote Health Monitoring Manager	5.5
8	Additional Skill Acquisition Programme (ASAP) Kerala	Agriculture	Hydroponics farmer	4
9	Ganpat University	Agriculture	Agribusiness Analyst (Future Skills)	5
10	Shri Vishwakarma Skill University	Environmental Science	Solar Site Engineer	4.5
11	Food Industry Capacity & Skill Initiative	Food Processing	Coconut Processor - Value Added Products	2.5
12	Food Industry Capacity & Skill Initiative	Food Processing	Fortified Food Specialist	4
13	Food Industry Capacity & Skill Initiative	Food Processing	Sugar Plant Processing Operator	4
14	Food Industry Capacity & Skill Initiative	Food Processing	Fish and Seafood Technician - Value Added Products	3
15	Skill Council of Green Jobs	Environmental Science	Biomedical Waste Management Professional	4.5
16	Skill Council of Green Jobs	Environmental Science	GHG Accounting and Sustainability Reporting Manager	6