

NSDA Code 2020/TEXT /DGT/03741

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Directorate General of Training (DGT)
Government of India, Ministry of Skill Development and Entrepreneurship,
1st and 2nd Floor, CIRTES Building
Next to Pusa ITI, Pusa Campus
New Delhi - 110012

Name and address of submitting body:

Directorate General of Training (DGT)
Government of India, Ministry of Skill Development and Entrepreneurship,
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Name and contact details of individual dealing with the submission

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List of documents submitted in support of the Qualifications File

1. Competency-based curriculum with following details:

Model Curriculum to be added which will include the following:

1. Indicative list of tools/equipment to conduct the training: Enclosed with curriculum
2. Trainers qualification: Indicated in the curriculum
3. Lesson Plan: All DGT curricula are designed indicating specific practical to be carried out during training along with details of trade theory. Based on this the

concerned instructor prepares the Lesson Plan and demonstration plan with support of IMPs developed by NIMI,DGT.

4. Distribution of training duration into theory/practical Indicated in the curriculum.
2. Curriculum for Core Skills (Workshop Calculation & Science, Engineering Drawing and Employability Skills).

NSQC Approved

• **SUMMARY**

1	Qualification Title	'WEAVING TECHNICIAN'
2	Qualification Code, if any	DGT/1101
3	NCO code and occupation	2141.1500 – Weaving Master 7318.5800 – Weaver, Handloom 7318.5500 – Weaver Power Loom 8152.0400 – Card Cutter
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term)	Prepare skilled Technician to undertake the job roles of Weaving Technician and will enable the trainee to controls and supervises weaving of clothes, calendaring and process preparatory to weaving in factories etc. It is long term qualification.
5	Body/bodies which will award the qualification	Directorate General of Training (DGT).
6	Body which will accredit providers to offer courses leading to the qualification	Directorate General of Training (DGT) accredits the Training providers (ITIs/ NSTIs/ MSTIs/ BTCs/ BTPs / Industries / Establishments).
7	Whether accreditation /affiliation norms are already in place or not , if applicable (if yes, attach a copy)	Yes. The accreditation/ affiliation norms and any amendments made from time to time are available on DGT web portal.
8	Occupation(s) to which the qualification gives access	<ul style="list-style-type: none"> • 2141.1500 – Weaving Master • 7318.5800 – Weaver, Handloom • 7318.5500 – Weaver Power Loom • 8152.0400 – Card Cutter
9	Job description of the occupation	Weaving Technician applies different types of operation, tests textile machineries used in industries with raw materials and performs various weaving processes. The learner is responsible to weave cloth from yarn on handloom or power loom, operate card cutting machine etc. and instructs jobbers for proper winding, warping and sizing of yarn.
10	Licensing requirements	NOT REQUIRED
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)	NOT APPLICABLE
12	Level of the qualification in the NSQF	Level 5

13	Anticipated volume of training/learning required to complete the qualification	Sl. No.	Course Element	Notional Training Hours		
		1	Professional Skill (Trade Practical)	2000		
		2	Professional Knowledge (Trade Theory)	640		
		3	Workshop Calculation & Science	160		
		4	Engineering Drawing	160		
		5	Employability Skills	240		
			Total	3200		
14	Indicative list of training tools required to deliver this qualification	As per Annexure I of curriculum.				
15	Entry requirements and/or recommendations and minimum age	<p>Passed 10th Class with Science and Mathematics.</p> <p>Minimum age 14years as on first day of academic session.</p>				
16	Progression from the qualification (Please show Professional and academic progression)	<p>An Individual can proceed for:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Professional</p> <ul style="list-style-type: none"> • Technician • Senior Technician • Supervisor • Manager • Entrepreneur </td> <td style="width: 50%; vertical-align: top;"> <p>Technical / Academic</p> <div style="text-align: center;"> </div> <p>ATS Diploma/ CITS Advance Diploma (Vocational)</p> </td> </tr> </table>			<p>Professional</p> <ul style="list-style-type: none"> • Technician • Senior Technician • Supervisor • Manager • Entrepreneur 	<p>Technical / Academic</p> <div style="text-align: center;"> </div> <p>ATS Diploma/ CITS Advance Diploma (Vocational)</p>
<p>Professional</p> <ul style="list-style-type: none"> • Technician • Senior Technician • Supervisor • Manager • Entrepreneur 	<p>Technical / Academic</p> <div style="text-align: center;"> </div> <p>ATS Diploma/ CITS Advance Diploma (Vocational)</p>					
17	Arrangements for the Recognition of Prior learning (RPL)	Yes (For more details refer "Guidelines for Private candidate" in DGT website MIS portal).				
18	International comparability where known (research evidence to be provided)	---				
19	Date of planned review of the qualification.	5 Yrs from the Date of Approval				
20	Formal structure of the qualification					

Mandatory components				
	Title of component and identification code / NOSs / Learning outcomes	Estimated size (learning hours)		Level
		SKILL	KNOWLEDGE	
TRADE SPECIFIC				
(i)	Plan and organize the work to make job as per specification applying different types of basic fitting operations and check for dimensional accuracy following safety precaution. <i>[Basic fitting operations – marking, Hack-sawing, punching, Chiselling, Filing, Drilling, Grinding and job setting]</i>	175	49	5
(ii)	Plan and organize the work to make job on facing, chamfering, plain Turning, taper turning and simple thread.	100	28	5
(iii)	Plan and identify different types of skill related to sheet metal work and on various types of welding practices like square butt joint, single V butt joint, arc welding and gas welding.	50	14	5
(iv)	Apply a range of skill to execute different carpentry work.	50	14	5
(v)	Plan, identify and test on electrical /electronic measuring instruments.	150	42	5
(vi)	Identify types of operation, test different textile machineries used in industries with the raw materials.	100	28	5
(vii)	Perform various weaving preparatory processes using important machine settings, adjustments; material flow, calculating production, efficiency, important parameters of various machines and their maintenance.	250	70	5
(viii)	Identify different types of sizing machines, their parts, functions and their maintenance schedule.	100	28	5
(ix)	Identify & apply sizing ingredients, formulation of recipe for cotton yarn,	25	7	5

	determine sizing cost and check production and efficiency of sizing machine.			
(x)	Identify types of reed & heald wire and their use.	75	27	5
(xi)	Prepare Point Paper for basic and modified weave types with design, draft & peg plan.	250	90	5
(xii)	Check Quality parameters of defective yarn samples, End break study in looms.	25	9	4
(xiii)	Identify various weaving loom, their classification and Perform primary, secondary & auxiliary motion of loom using weaving machines.	125	45	5
(xiv)	Calculate loom constant, Production and efficiency Timing Diagram, Fabric quality parameters.	50	18	5
(xv)	Identify, check the functions of dobby.	25	9	5
(xvi)	Identify, execute the operation of Jacquard loom.	50	18	5
(xvii)	Analyze and operate drop box loom.	50	18	5
(xviii)	Identify different path and functions, types of Projectile loom and operate the same.	150	54	5
(xix)	Identify different path and functions, types of Rapier loom and operate the same.	75	27	5
(xx)	Identify different path and functions, types of Air-jet loom and operate the same.	100	36	5
(xxi)	Identify & apply QA system in textile industry.	25	9	5
CORE SKILL				
EMPLOYABILITY SKILL				
i)	Apply safe working practices.	-	30	5
ii)	Comply with environment regulation and housekeeping.	-	30	5
iii)	Interpret & use formal and technical communication.	-	30	5
iv)	Apply the concept in productivity & quality management in day to day	-	30	5

	work to improve productivity & quality.			
v)	List and interpret various acts of labour welfare legislation.	-	30	5
vi)	Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	-	30	5
vii)	Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	-	30	5
viii)	Utilize computer applications and internet to take benefit of IT developments in the industry.	-	30	5
WORKSHOP CALCULATION & SC				
(i)	Demonstrate mathematical concept and principles to perform practical operations.	-	80	5
(ii)	Explain science in the field of study including simple machine.	-	80	5
ENGINEERING DRAWING				
(i)	Read and apply engineering drawing for different application in the field of work.	-	160	5
	Total		3200	-

SECTION 1
ASSESSMENT

21	<p>Body/Bodies which will carry out assessment: Controller of Examinations, DGT</p>
22	<p>How will RPL assessment be managed and who will carry it out? DGT will carry out the RPL assessment following the below mentioned eligibility criteria for Trainee: Applicants aspiring to appear as Private Candidates in the AITT under CTS for award of NTC, have been categorized based on their educational background and experience. Subsequently 'Private Candidates' may be admitted under one of the following categories. Category wise 'eligibility criteria' for appearing as 'Private Candidate' in AITT under CTS has been listed below: Category I: Ex-trainees (successful pass-outs) of ITI A. Ex-trainees of ITI who already possess NTC in one of the trades under CTS, are eligible for applying as Private candidate for an allied trade, provided he/ she fulfils all the conditions regarding educational qualification etc. prescribed for that allied trade. B. In addition, the applicant should possess minimum of 1 year experience (as on date of submission of application) post the date of AITT result declaration in the desired allied trade in establishments implementing Apprenticeship Training Scheme (ATS)/ establishments registered under the Apprenticeship portal or registered MSMEs or Entities registered with any government/local authorities / shops covered under Factories Act 1948 and Shops and Establishments Act applicable for the concerned State. Category II: 'Ex-trainees (successful pass-outs) and current trainees under CoE scheme A. The applicant should have the minimum prescribed entry qualification and should fulfil eligibility criteria for the desired trade under CTS, in which he/she intends to appear for AITT as Private Candidate. CoE candidates must register as 'Private Candidate' under CTS in the relevant/mapped CTS trade only. B. There should be a minimum gap of 1 year between successful completions of CoE training i.e. from the date of result declaration to the date of submission of application for 'Private Candidate' certification. C. During this gap of 1 year, the candidate must have undergone Industry training or gained experience in desired trade in establishments implementing Apprenticeship Training Scheme (ATS)/ establishments registered under the Apprenticeship portal or registered MSMEs or Entities registered with any government/local authorities / shops covered under Factories Act 1948 and Shops and Establishments Act applicable for the concerned State. Category III: SCVT Candidates (admitted till August 2018 session)</p>

	<p>A. No special provisions have been made for SCVT Trainees to enrol as 'Private Candidate'. Going forward, SCVT trainees have been granted equivalence vide G.S.R 186(E) dated 2nd March 2017 for undergoing apprenticeship training under the Apprentices Act 1961 to obtain 'NAC'.</p> <p>B. Only for SCVT trainees admitted till August 2018 batch, provision has been made for obtaining NTC by appearing in AITT under 'Private Candidate'. Such trainees will continue to be governed by old guidelines for 'Private Candidate'.</p> <p>Category IV: Other Candidates (candidate not falling in any of the above 3 categories, including SCVT trainees enrolled from admission session 2019 onwards)</p> <p>A. The applicant should have the minimum prescribed entry qualification and should fulfil eligibility criteria for the relevant trade under CTS, in which he/she desires to appear for AITT as Private Candidate.</p> <p>B. Applicant should be minimum 21 years of age on the date of submission of application. There is no upper age limit.</p> <p>C. The applicant should possess minimum of 3 years' experience (on the date of submission of application) in the relevant trade in establishments implementing Apprenticeship Training Scheme (ATS)/ establishments registered under the Apprenticeship portal or registered MSMEs or Entities registered with any government/local authorities / shops covered under Factories Act 1948 and Shops and Establishments Act applicable for the concerned State. For detail and updated information please refer to DGT web portal.</p>
<p>23</p>	<p>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.</p> <p>(1) Assessment process: The assessment for the qualification is carried out by conducting formative assessments, and end of year examinations (Summative). The formative assessments in respect of each Learning Outcome for practical and related theory are conducted by the concerned instructors for evaluating the knowledge and skill acquired by trainees and the behavioural transformation of the trainees. This formative assessment is primarily carried out by collecting evidence of competence gained by the trainees by evaluating them at work based on assessment criteria, asking questions and initiating formative discussions to assess understanding and by evaluating records and reports. Summative assessment is carried out by All India Trade Test on Trade Theory, Trade practical, Workshop Calculation & Science, Engineering Drawing and Employability Skills. The question papers for the theory Examinations contain objective type questions.</p>

The marking pattern and distribution of marks for the qualification are as under:

Marking Pattern				
Sl. No.	Type of assessment	Subject for the trade test	Marks for the 1st Year	Marks for the 2nd Year
1	Summative Assessment	Practical	250	250
2		Trade Theory	100	100
3		Employability Skills	50	50
4		Workshop Calculation and Science.	50	50
5		Engineering Drawing	50	50
6	Formative assessment based on Learning Outcomes		200	200
TOTAL:			700	700

(2) Minimum pass marks:

The minimum pass percent for Trade Practical and Formative assessment is 60% & for all other subjects is 33%. There will be no Grace marks.

Testing and certifications for the course:

Controller of examinations, DGT carries out the assessment and issues National Trade Certificate (NTC) following the norms and guidelines issued by the Directorate from time to time.

Overall assessment strategy:

Assessment of the qualification evaluates trainees to show that they can integrate

knowledge, skills and values for carrying out relevant tasks as per the defined learning outcomes and assessment criteria. The trainees may choose the preferred language for assessment. The underlying principle of assessment is fairness and transparency. While assessing the trainee, assessor is directed to assess as per the defined assessment criteria against the learning outcomes. The evidence of the competence acquired by the trainees can be obtained by conducting theory and practical examinations, observing the trainees at work, asking questions and initiating discussions to assess, understand and evaluate records and reports. The ultimate objective of the assessment is to assess the candidates as per the defined assessment criteria for the learning outcomes.

Specific Arrangements for assessment:

- Assessment is outcome-based.
- There are formative and summative assessments in Theory and Practical.
- Assessment is carried out in Trade theory, Trade Practical, Workshop Calculation and Science, Engineering Drawing and Employability Skills.
- While Trade Theory and Trade Practical are used for assessing Trade-related jobs, Workshop Calculation and Science is used to test trainee's numerical and logical skills, Drawing is used to test the ability of the trainee to draw and read sketches and Employability skills is used to test the communication, professional language, leadership, entrepreneurship and team-work abilities of the trainee.
- In addition to demonstration of theory and practical knowledge, trainees get a chance to present total personality.

Quality assurance activities:

Question papers are set by external paper setters / software generated.
 Evaluation of Theory Examinations in Trade, Workshop Calculation & Science, Engineering Drawing and Employability Skill is done by third-party agency.
 Trade Practical is examined by External Examiner.

24. Assessment evidences

Title of Component: Formative Assessment Breakup

(on half yearly average of the learning assessment covered)

Means of assessment

Assessment will be evidence based comprising the following for each Learning Outcome:

Serial No.	Terminal Competency	Maximum Weightage (%)
1	Safety consciousness	15
2	Workplace hygiene	5
3	Attendance/ Punctuality	10

4	Ability to follow Manuals/ Written instructions	5
5	Application of Knowledge	10
6	Skills to handle tools / equipment/ Instruments/ Devices	10
7	Economical use of materials	5
8	Working Strategy	10
9	Quality in workmanship/ Performance	15
10	VIVA	15
	Total Maximum Weightage (%)	100

Pass/Fail

The minimum pass percentage is 60% marks for formative assessment.

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LEARNING OUTCOME WITH ASSESSMENT CRITERIA

LEARNING OUTCOME (TRADE SPECIFIC)	
LEARNING OUTCOME	ASSESSMENT CRITERIA
FIRST YEAR	
1. Plan and organize the work to make job as per specification applying different types of basic fitting operations and Check for dimensional accuracy following safety precaution. <i>[Basic fitting operations – marking, Hack-sawing, punching, Chiselling, Filing, Drilling, Grinding and job setting]</i>	Observe the safety precautions during filing, marking and punching, internal fitting and drilling practice.
	Identify the type of hand tools, care and maintenance during various practices.
	Identify the cutting and measuring tools used for filing, marking and punching practice.
	Identify the types and specifications of drills, cutting angles, tap drills and dies used for internal fitting and drilling.
	Identify the geometrical construction of various types of grinding machine.
	Identify the various types of gauges, uses, care and maintenance.
	Identify the types of lathes, parts and its functions of lathe machinery.
2. Plan and organize the work to make job on facing, chamfering, plain Turing, taper turning and simple thread.	Select the different types of operations performed in lathe.
	Identify the cutting tool materials, types and selection of cutting angles.
	Select the uses and applications of various types of cutting angles.
	Identify the different types of threads and its application for tapping and dyeing process.
3. Plan and identify different types of skill related to sheet metal work and on various types of welding practices like square butt joint, single V butt joint, arc welding and gas welding.	Identify the various types of hand tools, marking and cutting tools used for sheet metal work.
	Identify soft and hard soldering operations used in sheet metal joint.
	Identify the types of sheets used for folding, notching, wiring and hemming operations.
	Identify the allowances and uses of sheets for folding, notching, wiring and hemming operations.
	Identify the tools, equipments and types of welding joints.
	Identify the various types of welding practices, electrodes and current selection for the welding process.

	Observe the specifications and safety precautions during welding practice.
	Observe the type of gases, pressure and nozzle selection used in gas welding.
	Perform the edge preparation for arc and gas welding process.
4. Apply a range of skill to execute different carpentry work.	Identify the hand and measuring tools, work holding devices used in carpentry.
	Identify the types of clamps, sizes and its uses in carpentry.
	Identify the plan and setting parameters for sharpening.
	Identify the different types of saws, setting parameters and its uses in carpentry.
	Familiar on specifications and uses of wood working machine.
	Identify adhesive types and identify its uses in carpentry.
5. Plan, identify and test on electrical /electronic measuring instruments.	Select the different electrical measuring instrument.
	Identify the instruments used for testing.
	Identify the fundamental terms of work power, energy, units, voltage, current resistance, and colour codes.
	Identify the types of cables, standard wire gauge, ohm's law and Kirchoffs law.
	Identify the concepts of series and parallel connection.
	Identify the properties of conductor, semi-conductor and insulator.
	Identify the primary and secondary cells, common electrical accessories and their specification.
	Demonstrate the functioning of domestic appliances.
	Measure and record the data by using the testing instrument like ammeter, voltmeter and multimeter of AC and DC.
6. Identify types of operation, test different textile machineries used in industries with the raw materials.	Know the process sequence of yarn manufacture and intermediate products
	Know the importance of textile industry and its contribution to Indian economy
	Classify textile fibres based on origin
	Identify textile fibres with respect to test
	Determine the yarn properties – count, twist, CSP, strength and unevenness, CV%
7. Perform various Weaving preparatory processes using	Know the objectives of winding, warping process and pirn winding process.
	Differentiate packages from various operations LIKE direct /

Important machine settings, adjustments; material flow, Calculating Production, Efficiency, important parameters of various machines and their Maintenance.	indirect warping and beam / sectional warping
	Classify pirns with respect to loom / shuttle types
	Determine warp beam & pirn parameters
	Draw the gearing diagram of various machines and determine their production data.
	Draw the gearing diagram of winding machine and determine production data.
	Determine wound package parameters – length, weight, diameter, etc.
	Learn the types of knot and splices
	Understand the features of modern automatic winders.
	Know the wound package faults, causes and remedial measures.
	Establish accurate settings on winding machine based on yarn count and norms.
	Learn the types of creel and stop motions.
	Understand the features of modern warpers.
	Know the warp beam faults, causes and remedial measures.
	Know the unique processes related to sectional warping – leasing, pattern formation, section parameters determination, number of sections, etc.
	Establish accurate settings on warping machine based on yarn count and norms.
	Learn the types of tensioners and stop motions.
	Know the features of modern pirn winders.
	Know the pirn package faults, causes, remedial Measures and pirn stripping process.
	Know the pirn traverse, builder mechanism.
Establish accurate settings on pirn winder based on yarn count and norms.	
8. Identify different types of Sizing machines, their parts, functions and their maintenance schedule.	Know the objectives of sizing process
	Classify sizing machines with respect to drying arrangement.
	Draw the material passage diagram of sizing machine.
	Learn the types of creel arrangement, size box, drying systems and yarn splitting.
	Know the features of modern sizing machines.
	Know the Speed regulation process – PIV and Variator.
	Establish the settings on sizing machine based on yarn count and norms.
	Know various controls – temperature, level, moisture and stretch.
	Know the marking and length measuring process and

	operation of safety valves.
9. Identify & apply sizing ingredients, formulation of recipe for cotton yarn, Determine Sizing Cost and check Production and Efficiency of sizing machine.	Determine sizing machine parameters – Size concentration, Add-on and Percentage.
	Know the cost of sizing
	Learn the various size ingredients and recipe formulation for various yarn types.
	Know the size mixing and cooking process.
	Know the single end sizing
	Know the sized beam defects, causes, remedial measures.
	Determine the production and efficiency of sizing machine.
SECOND YEAR	
10. Identify types of reed & heald wire and their use.	Know the types of reed and heald wire.
	Determine reed count and heald count in various methods.
	Calculate dent spacing of reed
	Know the types of drawing-in and tying machines
	Know the drawing-in ,pinning and denting procedure for various weave pattern
	Know the beam gaiting sequence of various weave types on the loom
11. Prepare Point Paper for basic and modified weave types with design, draft & peg plan.	Know the draw the weave representation in point paper.
	Know the preparation of design, draft and peg plan in point paper for fundamental weave patterns – Plain, twill, satin, sateen.
	Know the preparation of design, draft and peg plan in point paper for modified weave patterns – Rib weaves, twill derivatives, crepe, honey comb, huck-a-back, Bedford cord, mock leno, etc.
12. Check Quality parameters of defective yarn samples, End break study in looms.	Know the yarn quality requirements of both warp and weft for shuttle and shuttleless looms.
	Know the various yarn defects and remedial measures.
	Carry out end breakage study in looms.
13. Identify various weaving loom, their classification and Perform primary, secondary & auxiliary motion of loom using	Know the principles of fabric formation.
	Classify looms based on level of operation /technology.
	Distinguish merits/demerits of auto and non-auto looms.
	Know the salient features of shuttleless looms.
	Know the principles of shedding, picking and beat-up motions.
	Trace the material passage through loom and identify various

weaving machines.	parts.
	Draw the gearing diagram of drive and determine speed of loom shafts – crank, bottom and tappet shafts.
	Establish settings related to tappet shedding – shed depth; change tappets according to weave patterns.
	Establish settings of picking – timing /force adjustment.
	Establish settings of beat-up – sley eccentricity setting.
	Know the difference between positive and negative shedding
	Know the difference between over and under picking.
	Know the principle of negative and positive let-off mechanisms
	Know the mechanism of adjusting the settings
	know to control the warp tension
	Know to adjust the parts for changing the settings
	Know the settings of backrest, stop motions, feelers, pirn transfer.
	Know the mechanism of shuttle protection – fast reed and loose reed.
	Know the mechanism and settings of pirn changing mechanism.
14. Calculate loom constant, Production and efficiency Timing Diagram, Fabric quality parameters.	Draw the loom timing diagram of various looms.
	Calculate loom constant.
	Determine the production rate of looms and its efficiency.
	Know the various fabric quality parameters – EPI, PPI, GSM, etc.
15. Identify, check the functions of dobby.	Know the principles of dobby, its types and classification.
	Trace the material passage through dobby loom and identify various parts.
	Know the dobby pegging sequence according to weave plan.
	Carry out the mounting of wooden lattice with pegs depending on dobby type – LH or RH.
	Know the technique of pick finding.
	Awareness to electronic dobby and cross border dobby.
	Know the working of paper dobby.
	Carry out maintenance and lubrication in dobby looms.
16. Identify, execute the operation of Jacquard loom.	Know the principles of jacquard, its types and classification.
	Trace the material passage through jacquard loom and identify various parts.
	Preparation of the point paper depending on weave design.
	Carry out card punching according to point paper design
	Load the laced cards on the jacquard depending on single /

	double cylinder jacquard.
	Know the process of casting out in jacquard.
	Connection of harness to hook and lingoes.
	Awareness to electronic and fine pitch jacquards.
	Carry out maintenance and lubrication in jacquard looms.
	Establish settings on picking force, shuttle box, alignment, reed alignment, race board alignment.
17. Analyze and operate drop box loom.	Know the objectives of drop box, its types and classification – 1x2, 1x4, 4x4 types.
	Identify various parts in a drop box loom.
	Know then procedure to draw weft patterns for the given style.
	Arrange the shuttles in drop box according to color order in the weft pattern.
	Carry out lattice pegging according to color and lift sequence.
	Know the safety and card saving devices in drop box loom.
	Carry out maintenance and lubrication in drop box looms.
	Know the change in loom settings of various motions to carry out blends/synthetic weaving.
	Know the defects, its causes and remedial measures common to blends/synthetic fabric weaving.
18. Identify different path and functions, types of Projectile loom and operate the same.	Know the principle of operation of projectile looms.
	Identify the parts and functions of projectile looms.
	Know the settings of torsion bar picking mechanism and the weft insertion cycle.
	Know the settings of cam arrangement, shed geometry, weft accumulator, stop motion, take-up, let-off, sley drive.
	Modify / alter data in the control panel according to weave style and other electronic features.
	Carry out maintenance and lubrication in projectile looms.
19. Identify different path and functions, types of Rapier loom and operate the same.	Know the principle of operation of rapier looms.
	Identify the parts and functions of rapier looms.
	Know the settings of picking system and weft insertion cycle in rapier loom – time of entry, exit, meeting of rapiers at centre, etc.
	Know the settings of cam arrangement, shed geometry, weft accumulator, stop motion, take-up, let-off, sley drive, selvedge motion.
	Modify / alter data in the control panel according to weave style and other electronic features.
	Carry out maintenance and lubrication in rapier looms.

20. Identify different path and functions, types of Air-jet loom and operate the same.	Know the principle of operation of air-jet looms.
	Identify the parts and functions of air-jet looms.
	Know the settings of picking system and weft insertion cycle in air-jet loom
	Know the air quality and its requirement for picking operation.
	Know the operation of air compressor and drier.
	Know the timings / settings of main, sub-nozzles, profiled reed, stretch nozzles.
	Know the settings of cam arrangement, shed geometry, weft accumulator, stop motion, take-up, let-off, sley drive, and selvage motion.
	Modify / alter data in the control panel according to weave style and other electronic features.
	Carry out maintenance and lubrication in airjet looms.
21. Identify & apply QA system in textile industry.	Know the concepts of quality and quality assurance.
	Know the ISO 9000 quality system and its importance.
	Know other systems of QA – ISO 14000, SA 8000, OHSAS 18000.
	Know the fabric quality parameters and testing methods.

LEARNING OUTCOME(CORE SKILL)	
LEARNING OUTCOME	ASSESSMENT CRITERIA
EMPLOYABILITY SKILLS	
1. Apply safe working practices.	Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy.
	Recognize and report all unsafe situations according to site policy.
	Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	Identify, handle and store / dispose off dangerous goods and substances according to site policy and procedures following safety regulations and requirements.
	Identify and observe site policies and procedures in regard to illness or accident.
	Identify safety alarms accurately.
	Report supervisor/ Competent of authority in the event of

	<p>accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.</p> <p>Identify and observe site evacuation procedures according to site policy.</p> <p>Identify Personal Protective Equipment (PPE) and use the same as per related working environment.</p> <p>Identify basic first aid and use them under different circumstances.</p> <p>Identify different fire extinguisher and use the same as per requirement.</p>
2. Comply with environment regulation and housekeeping.	<p>Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.</p> <p>Deploy environmental protection legislation & regulations.</p> <p>Take opportunities to use energy and materials in an environmentally friendly manner.</p> <p>Avoid waste and dispose waste as per procedure.</p> <p>Recognize different components of 5S and apply the same in the working environment.</p>
3. Interpret & use formal and technical communication.	<p>Obtain sources of information and recognize information.</p> <p>Use and draw up technical drawings and documents.</p> <p>Use documents and technical regulations and occupationally related provisions.</p> <p>Conduct appropriate and target oriented discussions with higher authority and within the team.</p> <p>Present facts and circumstances, possible solutions & use English special terminology.</p> <p>Resolve disputes within the team.</p> <p>Conduct written communication.</p>
4. Apply the concept in productivity & quality management in day to day work to improve productivity & quality.	<p>Explain the concept of productivity and apply during execution of job.</p> <p>Explain the concept of quality tools and apply during execution of job.</p>
5. List and interpret various acts of labour welfare legislation.	<p>Explain basic concept of labour welfare legislation, adhere to responsibilities and remain sensitive towards such laws.</p> <p>Knows benefits guaranteed under various acts.</p>

6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	Explain the concept of energy conservation, global warming, pollution and utilize the available resources optimally & remain sensitive to avoid environment pollution.
	Explain standard procedure for disposal of waste.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	Explain personnel finance and entrepreneurship.
	Explain role of various schemes and institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non-financing support agencies to familiarize with the policies/ programmes, procedure & the available scheme.
	Prepare a report to become an entrepreneur for submission to financial institutions.
8. Utilize computer applications and internet to take benefit of IT developments in the industry.	Explain the hardware of personal computer.
	Use common application software viz., word, excel, power point etc., in day to day work.
	Awareness about useful internet websites, search relevant information pertaining to the assigned tasks.
WORKSHOP CALULATION & SCIENCE	
1. Demonstrate mathematical concept and principles to perform practical operations.	Solve different problems like phase angle, etc. with the help of a calculator.
	Demonstrate conversion of Fraction to Decimal and vice versa.
	Explain BCD code, conversion from decimal to binary and vice-versa, all other conversions.
2. Understand and explain basic science in the field of study including simple machine.	Explain concept of science related to the field such as Material science, Mass, weight, density, speed, velocity, heat & temperature, force, motion, pressure, heat treatment, centre of gravity, friction.
	Explain levers and its types.
	Explain relationship between Efficiency, velocity ratio and Mechanical Advantage.
	Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	Solve simple problems on lifting tackles like crane-Solution of problems with the aid of vectors.
ENGINEERING DRAWING	
1. Read and apply	Read & interpret the information on drawings and apply in

engineering drawing for different application in the field of work.	executing practical work.
	Read & analyse the specification to ascertain the material requirement, tools and assembly/maintenance parameters.
	Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.

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SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Weaving Technician		Level: 5	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	<p>Requires Well Developed Skill</p> <ul style="list-style-type: none"> Plan and organize the work to make job as per specification applying different types of basic fitting operations and Check for dimensional accuracy. [Basic fitting operations – marking, Hack-sawing, punching, Chiselling, Filing, Drilling, Grinding and job setting]. Plan and identify different types of skill related to sheet metal work and on various types of welding practices like square butt joint, single V butt joint, arc welding and gas welding. Identify types of operation, test different textile machineries used in industries with the raw materials. <p>Clear choice of procedures in familiar context</p> <ul style="list-style-type: none"> Plan, identify and test on electrical 	<p>The learner requires to demonstrate a well-developed skill for example ‘Plan and organize the work to make job as per specification applying different types of basic fitting operations and Check for dimensional accuracy. [Basic fitting operations – marking, Hack-sawing, punching, Chiselling, Filing, Drilling, Grinding and job setting].’ and ‘Perform various weaving preparatory processes using Important machine settings, adjustments; material flow, calculating production, efficiency, important parameters of various machines and their Maintenance.’ as indicated in the learning outcomes to achieve the tolerance levels and accuracy demanded as per the job.</p> <p>The learner requires to apply clear choice of procedures in familiar context as indicated in the learning outcomes. The learner has to apply ones knowledge and decide what needs to be</p>	5

Title/Name of qualification/component: Weaving Technician		Level: 5	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>/electronic measuring instruments.</p> <ul style="list-style-type: none"> Perform various weaving preparatory processes using Important machine settings, adjustments; material flow, calculating production, efficiency, important parameters of various machines and their Maintenance. 	<p>done to either meet the client's requirement or identify a fault and decide how to rectify it or plan as per requirements and resources available.</p> <p>Hence NSQF Level is 5 for this descriptor.</p>	
Professional knowledge	<p>Knowledge of facts in a field of work or study</p> <ul style="list-style-type: none"> Welding types-Arc Welding- Gas Welding- Welding tools and equipments Types of welding joints Overview of Textile Industry- History, Scope & Future Prospects, Strengths & Weakness of the industry. Intermediate Products in Spinning Process: Bale, Lap, Silver, Comber Lap, Roving, Ring frame Cone / Spool etc., Rotor yarn (open-end), air- jet spinning yarn etc. <p>Knowledge of Principles and general concepts in a field of work or study</p> <ul style="list-style-type: none"> Technical Data and terms in yarn trade Weaving Preparatory 	<p>The learner requires to demonstrate knowledge of facts, principles, processes and general concepts, in a field of work or study which is Science related to Weaving Preparatory, Warp Winding, Pirn Winding, Sizing and Beaming machine.</p> <p>The learner requires to demonstrate knowledge of principles, processes and general concepts in technical data and terms in yarn trade, loom drive et.</p> <p>Hence NSQF Level is 5 for this descriptor.</p>	5

Title/Name of qualification/component: Weaving Technician		Level: 5	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<ul style="list-style-type: none"> Warp Winding Pirn Winding Sizing and Beaming machine <p>Knowledge of processes in a field of work or study</p> <ul style="list-style-type: none"> Loom drive: Crank shaft, bottom shaft and auxiliary shaft and Driving Diagram. General loom requirement for synthetic and blended yarn weaving. 		
Professional skill	<ul style="list-style-type: none"> Identify different types of sizing machines, their parts, functions and their maintenance schedule. Identify & apply sizing ingredients, formulation of recipe for cotton yarn, determine sizing cost and check production and efficiency of sizing machine. Identify types of reed & heald wire and their use 	<p>The learning outcomes for example ‘Identify different types of sizing machines, their parts, functions and their maintenance schedule.’ and ‘Identify & apply sizing ingredients, formulation of recipe for cotton yarn, determine sizing cost and check production and efficiency of sizing machine’ requires cognitive and practical skills to accomplish tasks that involve understanding requirements; then as per requirements deciding which operations/procedure/tools will achieve desired result; planning the sequence of operations to maximum effectiveness; constantly checking and reviewing plan, etc., all of which involve problem solving and decision making.</p> <p>Hence NSQF Level is 5 for this descriptor.</p>	5

Title/Name of qualification/component: Weaving Technician		Level: 5	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Core skill	<p>Desired Mathematical Skills</p> <ul style="list-style-type: none"> • Demonstrate mathematical concept and principles to perform practical operations. • Understand and explain science in the field of study including simple machine. <p>Understanding of social/political</p> <ul style="list-style-type: none"> • Apply the concept in productivity & quality management in day to day work to improve productivity & quality. • Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources. <p>Organizing information and communication</p> <ul style="list-style-type: none"> • Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth. • Utilize computer applications and internet to take benefit of IT developments in the industry. 	<p>The learning outcomes for example 'Demonstrate mathematical concept and principles to perform practical operations' and 'Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources' display the learning outcomes where the learner needs to display desired mathematical skill; understanding of social, political; and some skill of collecting and organising information, communication.</p> <p>Hence NSQF Level is 5 for this descriptor.</p>	5
Responsibility	<ul style="list-style-type: none"> • Identify, execute the operation of Jacquard loom. • Analyze and operate drop box loom. 	<p>The role of Weaving Technician is independently responsible to perform the work as per specifications followed by analysis of what needs</p>	5

Title/Name of qualification/component: Weaving Technician		Level: 5	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<ul style="list-style-type: none"> Identify different path and functions, types of Projectile loom and operate the same. Identify different path and functions, types of Rapier loom and operate the same. Identify different path and functions, types of Air-jet loom and operate the same. Identify & apply QA system in textile industry. 	<p>to be done based on their understanding of various jacquard loom, their effect on machining processes, selection of best machining and mechanical working processes, principles and standards to achieve desired outcome. This is indicated in all the learning outcomes.</p> <p>Hence NSQF Level is 5 for this descriptor.</p>	

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SECTION 3

EVIDENCE OF NEED

<p>26</p>	<p>What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?</p>										
	<table border="1"> <thead> <tr> <th data-bbox="336 465 722 593">Basis</th> <th data-bbox="722 465 1396 593">In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</th> </tr> </thead> <tbody> <tr> <td data-bbox="336 593 722 1059">Need of the qualification</td> <td data-bbox="722 593 1396 1059">Textile and Handloom Sector has a significant presence of organized as well as unorganized skilled manpower requirement. This sector is poised to grow exponentially in the years to come and is highly labour intensive and there are many emerging trends in this sector. Hence the qualification has been designed keeping in view to cater to the ever-increasing demand of skilled manpower in consultation with stakeholders.</td> </tr> <tr> <td data-bbox="336 1059 722 1525">Industry Relevance</td> <td data-bbox="722 1059 1396 1525">The job role defined for the qualification is as per the National Classification of Occupations 2015 which is developed by Employment Directorate under the ministry of Labour and Employment in collaboration with different industry partners and as per ILO guidelines. Moreover, the training is imparted in ITIs/NSTIs/MSTIs/ BTC/ BTPs/ Industries / Establishments etc. where such requirement is available. This justifies the qualification is very much relevant for industry.</td> </tr> <tr> <td data-bbox="336 1525 722 1653">Usage of the qualification</td> <td data-bbox="722 1525 1396 1653">The Proposed qualification will create skilled Technician for various establishments in different Sectors.</td> </tr> <tr> <td data-bbox="336 1653 722 1738">Estimated uptake</td> <td data-bbox="722 1653 1396 1738">The present seating capacity is approximately 78.</td> </tr> </tbody> </table>	Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)	Need of the qualification	Textile and Handloom Sector has a significant presence of organized as well as unorganized skilled manpower requirement. This sector is poised to grow exponentially in the years to come and is highly labour intensive and there are many emerging trends in this sector. Hence the qualification has been designed keeping in view to cater to the ever-increasing demand of skilled manpower in consultation with stakeholders.	Industry Relevance	The job role defined for the qualification is as per the National Classification of Occupations 2015 which is developed by Employment Directorate under the ministry of Labour and Employment in collaboration with different industry partners and as per ILO guidelines. Moreover, the training is imparted in ITIs/NSTIs/MSTIs/ BTC/ BTPs/ Industries / Establishments etc. where such requirement is available. This justifies the qualification is very much relevant for industry.	Usage of the qualification	The Proposed qualification will create skilled Technician for various establishments in different Sectors.	Estimated uptake	The present seating capacity is approximately 78.
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Usage of the qualification	The Proposed qualification will create skilled Technician for various establishments in different Sectors.										
Estimated uptake	The present seating capacity is approximately 78.										
<p>27</p>	<p>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences</p> <p>The qualification, originally designed for Craftsman Training Scheme is in existence for many years and approved by DGT (Regulatory Body) under</p>										

	Ministry of Skill Development and Entrepreneurship, Govt. of India.
28	<p>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</p> <p>The qualification is originally designed and approved by DGT for the Craftsman Training Scheme and is in existence for many years. No such duplicate qualification of same duration and competencies exists.</p>
29	<p>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here</p> <ul style="list-style-type: none"> • The research wing of CSTARI & DGT reviews and updates the qualification, in consultation with industries and other stakeholders, on a regular basis by conducting trade committee meetings. • DGT will monitor any duplicity by comparing existing qualifications with upcoming ones in the National Qualifications Register (NQR) and relevant sectors.

SECTION 4
EVIDENCE OF PROGRESSION

30	<p>What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector? Show the career map here to reflect the clear progression</p> <p>On completion of the training the trainee will have an opportunity to move in vertical / horizontal pathways to promote to higher designations. The learner can further undergo other specialised courses to excel in the relevant field.</p> <pre> graph LR A[Technician] --> B[Senior Technician] B --> C[Supervisor] C --> D[Manager] B --> E[Entrepreneur] </pre>
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