

<b>NSDA Code</b> <b>2020/PLUM/DGT/03731</b>
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**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,  
1st and 2nd Floor, CIRTES Building  
Next to Pusa ITI, Pusa Campus  
New Delhi - 110012

**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/OJT component: Indicated in the curriculum.

2. Curriculum for Core Skills (Workshop calculation & science, Engineering Drawing and Employability Skills)

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• **SUMMARY**

<b>1</b>	<b>Qualification Title</b>	<b>'PLUMBER'</b>
<b>2</b>	<b>Qualification Code, if any</b>	<b>DGT/1014</b>
<b>3</b>	<b>NCO code and occupation</b>	7126.0101 - Plumber, General 7126.0102 - Plumber, Operations 7126.0103-Plumber, General-Installation and Repair 7126.0104 - Plumber, General Helper 7126.0105 - Plumber, General Assistant 7126.0106- Plumber, Maintenance and Servicing Assistant 7126.0107 - Plumber, Maintenance and Servicing 7126.0201 - Pipe Layer/Plumber Pipeline 7126.9900 - Plumbers and Pipe Fitters, Other 7212.0101- Plumber (Welder)/Plumbing (Sanitary Fixtures) Fitter Assistant 7212.0102 - Plumber (Welder) Assistant 7233.1301 - Plumber (Pumps & E/M Mechanic) 7126.0301 - Pipe Fitter
<b>4</b>	<b>Nature and purpose of the qualification (Please specify whether qualification is short term or long term)</b>	Prepare skilled Technician to assemble, install and maintain sanitary fittings and fixtures, sewage and drainage systems, heating and sanitary systems, gas and water pipe lines etc in factories, workshops, business and residential premises etc. (long term qualification)
<b>5</b>	<b>Body/bodies which will award the qualification</b>	Directorate General of Training (DGT).
<b>6</b>	<b>Body which will accredit providers to offer courses leading to the qualification</b>	Directorate General of Training (DGT) accredits the Training providers (ITIs/ NSTIs/MSTIs/BTCs/BTPs / Industries / Establishments).
<b>7</b>	<b>Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)</b>	Yes. The accreditation/ affiliation norms and any amendments made from time to time are available on DGT web portal.
<b>8</b>	<b>Occupation(s) to which the qualification gives access</b>	<ul style="list-style-type: none"> <li>• 7126.0101 - Plumber, General</li> <li>• 7126.0102 - Plumber, Operations</li> <li>• 7126.0103 - Plumber, General-Installation and Repair</li> </ul>

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		<ul style="list-style-type: none"> <li>• 7126.0104 - Plumber, General Helper</li> <li>• 7126.0105 - Plumber, General Assistant</li> <li>• 7126.0106 - Plumber, Maintenance and Servicing Assistant</li> <li>• 7126.0107 - Plumber, Maintenance and Servicing</li> <li>• 7126.0201 - Pipe Layer/Plumber Pipeline</li> <li>• 7126.9900 - Plumbers and Pipe Fitters, Other</li> <li>• 7212.0101- Plumber (Welder)/Plumbing (Sanitary Fixtures) Fitter Assistant</li> <li>• 7212.0102 - Plumber (Welder) Assistant</li> <li>• 7233.1301 - Plumber (Pumps &amp; E/M Mechanic)</li> <li>• 7126.0301 - Pipe Fitter</li> </ul>
9	<b>Job description of the occupation</b>	Plumber assembles, installs and maintains sanitary fittings and fixtures, sewage and drainage systems, heating and sanitary systems, gas and water pipe lines etc. Responsible for installation, operation and repair of plumbing system used in housing, commercial and institutional setups, drills passage holes in walls or floor of premises and fixes necessary brackets, stands, holders etc., maintenance and servicing of pipes and sanitary fixtures.
10	<b>Licensing requirements</b>	NOT REQUIRED
11	<b>Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)</b>	NOT APPLICABLE
12	<b>Level of the qualification in the NSQF</b>	Level 4

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13	Anticipated volume of training/learning required to complete the qualification	<b>Sl. No</b>	<b>Course Element</b>	<b>Notional Training Hours</b>
		1	Professional Skill (Trade Practical)	1000
		2	Professional Knowledge (Trade Theory)	280
		3	Workshop Calculation & Science	80
		4	Engineering Drawing	80
		5	Employability Skills	160
			<b>Total</b>	<b>1600</b>
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	8 <sup>th</sup> class pass. Minimum age 14 years as on first day of academic session.		
16	Progression from the qualification (Please show Professional and academic progression)	An Individual can proceed for:		
		Professional <ul style="list-style-type: none"> <li>• Technician</li> <li>• Senior Technician</li> <li>• Supervisor</li> <li>• Manager</li> <li>• Entrepreneur</li> </ul>	Technical / Academic <div style="margin-left: 20px;"> </div>	
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
Skills		Knowledge		
(i)	Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy following safety precautions. <i>[Basic fitting operation – marking, Hacksawing, Chiselling, Filing, Drilling, Taping and Grinding etc. Accuracy: ± 0.25mm]</i>	150	42	3
(ii)	Perform Inner & Outer Thread cutting on Metal & Studs and thread cutting on different types of pipes & fittings accessories.	25	7	4
(iii)	Join wood with carpenter's tools	25	7	4
(iv)	Carry out cutting of Pipes of Different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing.	50	14	3
(v)	Construct Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line.	50	14	4
(vi)	Carry out Cutting and Bending of Pipes using Plumber's tools and equipments.	75	21	4
(vii)	Join various type of PVC pipe by heat process or Welding.	25	7	4
(viii)	Construct complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line.	25	7	4
(ix)	Carry out cutting of different Types of PVC Pipe, joining and laying.	25	7	4
(x)	Perform Water analysis test, Water Pressure test and Water distribution system by using Pipe	25	7	4

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	line.			
(xi)	Align and lay humed asbestos pipe line of different dia and fitting & maintenance of drainage pipe line.	50	14	4
(xii)	Install and maintain different Electric pumps.	75	21	4
(xiii)	Join fittings for different purposes on PVC pipe line.	50	14	4
(xiv)	Construct inspection chamber, manhole, gutter, septic tank, socket etc.	25	7	4
(xv)	Test pipe line as per site drainage pipe line layout.	25	7	4
(xvi)	Perform removal of leakage pipe line.	25	7	4
(xvii)	Install, fix & maintain different valve & cock.	25	7	4
(xviii)	Install & maintain water metre and water supply for fixture.	75	21	4
(xix)	Demonstrate method of bending for different materials & different pipe joint.	50	14	5
(xx)	Perform fitting and maintenance of Fixture at different place.	50	14	4
(xxi)	Carry out fitting, fixing & laying installation of hot & cold water pipe line and symbolizing.	25	7	4
(xxii)	Perform repairing & reconditioning of waste pipe line.	25	7	5
(xxiii)	Perform repairing & reconditioning, scraping & painting of sanitary fittings pipe line.	25	7	4
<b>CORE SKILLS</b>				
<b>EMPLOYABILITY SKILLS</b>				
(i)	Apply safe working practices.	-	20	4
(ii)	Comply with environment regulation and housekeeping.	-	20	4
(iii)	Interpret & use formal and technical communication.	-	20	4
(iv)	Apply the concept in productivity &	-	20	4

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	quality management in day to day work to improve productivity & quality.			
(v)	List and interpret various acts of labour welfare legislation.	-	20	4
(vi)	Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	-	20	4
(vii)	Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	-	20	4
(viii)	Utilize basic computer applications and internet to take benefit of IT developments in the industry.	-	20	4
<b>WORKSHOP CALCULATION &amp; SC</b>				
(i)	Demonstrate basic mathematical concept and principles to perform practical operations.	-	40	4
(ii)	Explain basic science in the field of study including simple machine.	-	40	4
<b>ENGINEERING DRAWING</b>				
(i)	Read and apply engineering drawing for different application in the field of work.	-	80	4
<b>TOTAL</b>			<b>1600</b>	-



**SECTION 1**  
**ASSESSMENT**

21	<p><b>Body/Bodies which will carry out assessment:</b>          Controller of Examinations, DGT</p>
22	<p><b>How will RPL assessment be managed and who will carry it out?</b>          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:  <b>Category I: Ex-trainees (successful pass-outs) of ITI</b>          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.   <b>Category II: 'Ex-trainees (successful pass-outs) and current trainees under CoE scheme</b>          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</p>

	<p>concerned State.</p> <p>Category III: SCVT Candidates (admitted till August 2018 session)  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'.  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)  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.  B. Applicant should be minimum 21 years of age on the date of submission of application. There is no upper age limit.  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><b>23</b></p>	<p><b>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.</b></p> <p><b>(1) Assessment process:</b>  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</p>

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.

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
1	Summative Assessment	Practical	250
2		Trade Theory	100
3		Employability Skills	50
4		Workshop Calculation and Science.	50
5		Engineering Drawing	50
6	Formative assessment based on Learning Outcomes		200
TOTAL:			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	Terminal Competency	Maximum
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No.		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.

**ASSESSMENT CRITERIA**

<b>LEARNING OUTCOMES (TRADE SPECIFIC)</b>	
<b>LEARNING OUTCOMES</b>	<b>ASSESSMENT CRITERIA</b>
<p>1. Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy following safety precautions. <i>[Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: ± 0.25mm]</i></p>	Plan & Identify tools, instruments and equipments for marking and make this available for use in a timely manner.
	Select raw material and inspect visually for defects.
	Mark as per specification applying desired mathematical calculation and observing standard procedure.
	Measure all dimensions in accordance with standard specifications and tolerances.
	Identify Hand Tools for different fitting operations and make these available for use in a timely manner.
	Prepare the job for Hack sawing, chiselling, filing, drilling, tapping, grinding.
	Perform basic fitting operations viz., Hack sawing, filing, drilling, tapping and grinding to close tolerance as per specification to make the job.
	Observe safety procedure during above operation as per standard norms and company guidelines.
	Check for dimensional accuracy as per standard procedure.
Avoid waste, ascertain unused materials and components for disposal, store these in an environmentally appropriate manner and prepare for disposal.	
<p>2. Perform Inner &amp; Outer Thread cutting on Metal &amp; Studs and then thread cutting on different types of pipes &amp; fittings accessories.</p>	Identify Hand Tools for Plumber work.
	Identify Hand Tools for Cutting Inner thread and Outer thread.
	Identify the pipe fittings.
	Perform Inner thread cutting as per drawing.
	Perform Outer thread cutting as per drawing.
	Prepare the Pipe line circuit with fittings as per drawing.
	Observe safety procedure during thread cutting as per standard norms and company guidelines.
	Check and verify the job as per drawing.
<p>3. Join wood with carpenter's tools.</p>	Identify the woods and character.
	Identify the Carpenter's hand Tools.
	Prepare the job as per drawing.
	Observe safety procedure during wood cutting, sawing, chiselling, planing as per standard norms and company guidelines.

	Check and verify the job as per drawing.
4. Carry out cutting of Pipes of different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing.	Identify different components/parts of Gas (oxy-acetylene) machine, collect desired information and set each components/parts as per standard procedure.
	Observe safety/ precaution during operation.
	Select appropriate material & plan for gas cutting & joining operation.
	Cut & join metal parts / mechanical components as per specification observing standard procedure.
	Check cut portion/ joined part to ascertain proper welding.
	Identify hand tools for Soldering and Brazing.
	Mark and develop various forms as per drawing using sheet metals.
	Make of simple items with sheet metal as per drawing.
	Perform Soldering and Brazing.
	Observe safety procedure during operation
Check and verify the job as per drawing.	
5. Construct Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line.	Identify different types of Mason's hand tools.
	Identify the Construction materials.
	Make a simple construction of different type of Brick joints with mortar.
	Prepare a job Masonry work and RCC casting as per drawing.
	Check & verify the job as per drawing.
6. Carry out Cutting and Bending of Pipes using Plumber's tools and equipments.	Identify different types of Plumber's hand tools.
	Demonstrate care of hand tools.
	Cutting the pipe with Pipe cutter.
	Demonstrate working of Bending Machine and accessories.
	Make desired bend on pipe as per drawing.
	Check the job as per Drawing.
7. Join various type of PVC pipe by heat process or Welding.	Identify different types of PVC Pipe.
	Demonstrate working of Electric Welding Machine and accessories for PVC pipes
	Simple joint of PVC pipe by Welding Machine.
	Making a job with PVC fittings and pipe as per drawing.
	Observe safety procedure during operation.
8. Construct complete pipe line circuit with different	Identify different types of Joints.
	Identify different types of tools different types of Joints.

types of Joints and fixing Cocks & valve on Pipe line.	Make a Flange joint as per drawing.
	Make a Detachable joint as per drawing.
	Make a Spigot & Socket joint as per drawing.
	Make a Socket joint as per drawing.
	Identify GI fittings.
	Identify Cocks & Valves.
	Identify Tools for fixing of fittings with GI pipe, Cocks & Valves.
	Make a simple job on GI Pipe with fittings, Cocks, and Valves as per drawing.
	Check & verify the job as per drawing.
9. Carry out cutting of different Types of PVC Pipe, joining and laying.	Identify Tools and materials for Cutting & Joining of PVC pipes.
	Make a job of Pipe line Circuit as per drawing.
	Check & verify the job as per drawing.
10. Perform water analysis test, Water Pressure test and Water distribution system by using Pipe line.	Prepare water for test.
	Preparation of water analysis kits.
	Test water for pH, TDS, Temperature as per requirements.
	Preparation of Hydraulic Pressure Test Machine.
	Pressure test on Cistern and Tank.
	Check and verify test result.
11. Align and lay humid asbestos pipe line of different dia and fitting & maintenance of drainage pipe line.	Plan and identify tools, instrument and equipment for marking and make this available for use on a timed manner.
	Select of raw materials and visually inspect for defects.
	Check the defect of humid and asbestos pipe line.
	Prepare the job, tools & raw materials.
	Observe safety procedure for desired operation as per standard norms and company guidelines.
	Check for dimensional accuracy as per standard procedure.
12. Install and maintain different Electric pumps.	Select the pump and inspect for defects.
	Select the tools, instrument and equipment for the pump installation and repairing.
	Check and calculate output of the pumps.
	Install pump Observing standard procedure and method as per specification using appropriate tools and raw material.
	Check performance of the pump.
13. Join fittings for different purposes on PVC pipe	Identify tools, instrument and equipments for marking and make this available for use in a timely manner.



line.	Mark as per specification applying desired mathematical calculation and observing standard procedure.
	Join fittings for desired purpose on PVC pipe line.
	Measure all dimensions in accordance with the drawing.
	Observe safety procedure during desired operation as per standard norms.
	Check for dimensional accuracy as per standard procedure.
14. Construct inspection chamber, manhole, gutter, septic tank, socket etc.	Plan and identify tools and equipment for desired purpose and make this available for use in a timely manner.
	Select raw materials and inspect for defect.
	Mark as per drawing applying desired mathematical calculation and observing standard procedure.
	Construct inspection chamber, manhole, gutter, septic tank, socket etc. as per drawing.
	Measure all dimensions in accordance with standard specification and tolerance.
	Observe safety procedure during desired operation as per standard norms.
	Check for dimensional accuracy as per standard procedure.
15. Test pipe line as per site drainage pipe line layout.	Identify tools and equipment for testing pipe line.
	Prepare the job for different testing for pipe line.
	Test pipe line observing standard procedure.
	Observe safety precaution during operation.
16. Perform removal of leakage pipe line.	Identify the leakage pipe.
	Remove out pipe leakages as per standard procedure.
	Observe safety procedure during desired operation as per standard norms.
	Check performance after removal of leakages.
17. Install, fix & maintain different valve & cock.	Plan and identify tools, instrument & equipment for Installation, fixing & maintenance of different valve & cock and make this available for use in a timely manner.
	Select valve and cock, inspect for defects.
	Install desired Valve & Cock observing standard procedure.
	Identify the problem with valve & cock fitted and solved the problem.
	Observe safety procedure during the operation as per standard norms.
	Check different parameters and functionality of the system.

18. Install & maintain water metre and water supply for fixture.	Plan and identify tools, instrument & equipment for Installation, fixing & maintenance of different water metre and water supply for fixture and make this available for use in a timely manner.
	Select water metre and water supply for fixture, inspect for defects.
	Install desired water metre and water supply for fixture observing standard procedure.
	Identify the problem with water metre and water supply for fixture fitted and solved the problem.
	Observe safety procedure during the operation as per standard norms.
	Check different parameters and functionality of the system.
19. Demonstrate method of bending for different materials & different pipe joint.	Plan and identify tools, instrument & equipment for marking and make this available for use in a timely manner.
	Select desired material and machine and inspect for defects.
	Bend G.I. pipe as per drawing and measurement.
	Bend PVC pipe of different diameter in different angle.
	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	Check for dimensional accuracy as per drawing.
20. Perform fitting and maintenance of Fixture at different place.	Plan and identify tools, instrument & equipment for marking and make this available for use in a timely manner.
	Select raw material and inspect for defects.
	Cut & join C.I. pipe for waste pipe line in accordance with standard specification and drawing.
	Fix external soil pipe as per drawing observing standard procedure.
	Fix rain water gutter outlet and ground pipe as per standard norms and schedule drawing.
	Check different parameters and functionality of the system.
21. Carry out fitting, fixing & laying installation of hot & cold water pipe line and symbolizing.	Plan and identify tools, instrument & equipment for desired work and make this available for use in a timely manner.
	Install pipe line for distribution of hot & cold water according to drawing.
	Install hot water system & solar water heating system in accordance with standard specification and drawing.
	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	Check different parameters and functionality of the system.

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22. Perform repairing & reconditioning of waste pipe line.	Plan and identify tools, instrument & equipment for desired work and make this available for use in a timely manner.
	Perform fitting of different trap, valve, cistern etc.
	Construct over head tank as per drawing and measurement.
	Perform pressure test by hydraulic test machine.
	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	Check different parameters and functionality of the system.
23. Perform repairing & reconditioning, scraping & painting of sanitary fittings pipe line.	Plan and identify tools, instrument & equipment for desired work and make this available for use in a timely manner.
	Perform cleaning of sanitary pipe line and remove corrosion from pipe line.
	Remove corrosion from pipe line and Perform scraping & painting of pipe line in accordance with standard guidelines.
	Replace broken or cracked sanitary fitting.
	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	Check different parameters and functionality of the system.

<b>LEARNING OUTCOME(CORE SKILL)</b>	
<b>LEARNING OUTCOMES</b>	<b>ASSESSMENT CRITERIA</b>
<b>EMPLOYABILITY SKILLS</b>	
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 accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	Identify and observe site evacuation procedures according to site policy.
	Identify Personal Protective Equipment (PPE) and use the same as per related working environment.
	Identify basic first aid and use them under different circumstances.
	Identify different fire extinguisher and use the same as per requirement.
2. Comply with environment regulation and housekeeping	Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	Deploy environmental protection legislation & regulations
	Take opportunities to use energy and materials in an environmentally friendly manner.
	Avoid waste and dispose waste as per procedure
	Recognize different components of 5S and apply the same in the working environment.
3. Interpret & use formal and technical communication.	Obtain sources of information and recognize information.
	Use and draw up technical drawings and documents.
	Use documents and technical regulations and occupationally

	related provisions.
	Conduct appropriate and target oriented discussions with higher authority and within the team.
	Present facts and circumstances, possible solutions & use English special terminology.
	Resolve disputes within the team.
	Conduct written communication.
4. Apply the concept in productivity & quality management in day to day work to improve productivity & quality.	Explain the concept of productivity and apply during execution of job.
	Explain the concept of quality tools and apply during execution of job.
5. List and interpret various acts of labour welfare legislation.	Explain basic concept of labour welfare legislation, adhere to responsibilities and remain sensitive towards such laws.
	Knows benefits guaranteed under various acts.
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 basic computer applications and internet to take benefit of IT developments in the industry.	Explain the basic 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.
<b>WORKSHOP CALULATION &amp; SCIENCE</b>	
1. Demonstrate basic mathematical	Solve different problems like phase angle, etc. with the help of a calculator.

concept and principles to perform practical operations.	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 basic 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.
<b>ENGINEERING DRAWING</b>	
1. Read and apply engineering drawing for different application in the field of work.	Read & interpret the information on drawings and apply in 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.

**SECTION 2**

**25. EVIDENCE OF LEVEL**

**OPTION A**

Title/Name of qualification/component: Plumber			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	<p><b>Work in familiar, predictable, routine, situation of clear choice</b></p> <ul style="list-style-type: none"> <li>Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy. <i>[Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: ± 0.25mm]</i></li> <li>Perform Inner &amp; Outer Thread cutting on Metal &amp; Studs and thread cutting on different types of pipes &amp; fittings accessories.</li> <li>Join wood with carpenter's tools.</li> <li>Carry out cutting of Pipes of different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing.</li> </ul>	<p>As per the learning outcomes 'Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy. <i>[Basic fitting operation – marking, Hacksawing, Chiselling, Filing, Drilling, Taping and Grinding etc. Accuracy: ± 0.25mm].</i>' and 'Construct complete pipe line circuit with different types of Joints and fixing Cocks &amp; valve on Pipe line.' the learner will be required to choose appropriate tools, equipment and procedures as per the requirement of the job. The work will however be done within a familiar, predictable and routine range of situations to achieve the tolerance levels and accuracy demanded as per the job.</p> <p>Thus the learner requires demonstrating ability to work in familiar, predictable, routine, situation of clear choice.</p>	4

**NSQF QUALIFICATION FILE**

Approved in 24<sup>th</sup> NSQC, dated: 27<sup>th</sup> Feb, 2020

*Plumber*

Title/Name of qualification/component: Plumber			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<ul style="list-style-type: none"> <li>Construct complete pipe line circuit with different types of Joints and fixing Cocks &amp; valve on Pipe line.</li> </ul>	Hence NSQF Level is 4 for this descriptor.	
Professional knowledge	<p><b>Factual knowledge of field of knowledge or study</b></p> <ul style="list-style-type: none"> <li>Description of plumber tools and Equipment- Ratchet brace, Threading die, Pipe wrench, Sliding wrench, Spanner set, Chain Wrench etc. and their safety.</li> <li>Types of fittings for different joints &amp; different pipes.</li> <li>Different kinds of Joints, Fittings and Materials in joining pipes</li> <li>Hard &amp; Soft water, temporary hardness &amp; permanent hardness.</li> <li>Description of various pipe joints- straight, Branch, Taft and blow, Expansion joints. Solders and fluxes used in joints.</li> <li>Description of Plumber's materials lead, tin, Zinc, solder, copper, red lead etc. and their uses.</li> </ul>	<p>The learner will need to be well versed with factual knowledge of field of Plumbing work for example 'Description of plumber tools and Equipment- Ratchet brace, Threading die, Pipe wrench, Sliding wrench, Spanner set, Chain Wrench etc. and their safety.' and 'Description of various pipe joints- straight, Branch, Taft and blow, Expansion joints. Solders and fluxes used in joints' etc justify the requirement of factual knowledge in the field of Plumbing job.</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	4
Professional skill	<ul style="list-style-type: none"> <li>Construct Masonry brick wall and RCC casting. Brick wall cutting for concealing</li> </ul>	The learner after the trainer will be able to work independently and recall and demonstrate	4



Title/Name of qualification/component: <b>Plumber</b>			Level: <b>4</b>
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>pipe line.</p> <ul style="list-style-type: none"> <li>• Carry out Cutting and Bending of Pipes using Plumber’s tools and equipment.</li> <li>• Join various type of PVC pipe by heat process or Welding.</li> <li>• Carry out cutting of different Types of PVC Pipe, joining and laying.</li> <li>• Perform Water analysis test, Water Pressure test and Water distribution system by using Pipe line.</li> </ul>	<p>practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool as per the job given to them.</p> <p>The learner will also be responsible for own quality of work and will have to use quality tools to check own work to ensure conformance to requirements of the job.</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	
Core skill	<p><b>Basic Mathematical and Algebraic principles</b></p> <ol style="list-style-type: none"> <li>a. Demonstrate basic mathematical concept and principles to perform practical operations.</li> <li>b. Understand and explain basic science in the field of study including simple machine.</li> <li>c. Read and apply engineering drawing for different application in the field of work.</li> </ol> <p><b>Basic understanding of social political and natural environment</b></p> <ol style="list-style-type: none"> <li>d. Explain energy conservation, global</li> </ol>	<p>The learning outcomes for example ‘Demonstrate basic mathematical concept and principles to perform practical operations’ and ‘Understand and explain basic science in the field of study including simple machine ’ display the learning outcomes where the learner needs to display basic mathematical and algebraic principles; understanding of social, political; and some skill of collecting and organising information, communication.</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	4

Title/Name of qualification/component: Plumber			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>warming and pollution and contribute in day to day work by optimally using available resources.</p> <p>e. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal &amp; societal growth.</p> <p><b>Language to communicate written or oral, with required clarity</b></p> <p>f. Interpret &amp; use formal and technical communication.</p> <p>g. List and interpret various acts of labour welfare legislation.</p>		
Responsibility	<ul style="list-style-type: none"> <li>Align and lay humed asbestos pipe line of different dia and fitting &amp; maintenance of drainage pipe line.</li> <li>Install and maintain different Electric pumps.</li> <li>Join fittings for different purposes on PVC pipe line.</li> <li>Construct inspection chamber, manhole, gutter, septic tank, socket etc.</li> </ul>	The role of Plumber is independently responsible to perform the work as per specifications and their own analysis of what needs to be done based on their understanding of welding processes, principles and standards. Learning outcomes like 'Align and lay humed asbestos pipe line of different dia and fitting & maintenance of drainage pipe line' and 'Test pipe line as per site drainage pipe line layout' etc justify the same.	4

**NSQF QUALIFICATION FILE**Approved in 24<sup>th</sup> NSQC, dated: 27<sup>th</sup> Feb, 2020*Plumber*

Title/Name of qualification/component: Plumber			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<ul style="list-style-type: none"><li>• Test pipe line as per site drainage pipe line layout.</li><li>• Perform removal of leakage pipe line.</li></ul>	Hence NSQF Level is 4 for this descriptor.	

**SECTION 3**  
**EVIDENCE OF NEED**

26	<p><b>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?</b></p> <table border="1"> <thead> <tr> <th data-bbox="339 465 807 607">Basis</th> <th data-bbox="807 465 1506 607">In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</th> </tr> </thead> <tbody> <tr> <td data-bbox="339 607 807 1032">Need of the qualification</td> <td data-bbox="807 607 1506 1032"> <p><b>Plumbing</b> 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.</p> <p>Hence the qualification has been designed keeping in view to cater to the ever-increasing demand of skilled manpower in consultation with stakeholder.</p> </td> </tr> <tr> <td data-bbox="339 1032 807 1496">Industry Relevance</td> <td data-bbox="807 1032 1506 1496"> <p>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.</p> </td> </tr> <tr> <td data-bbox="339 1496 807 1626">Usage of the qualification</td> <td data-bbox="807 1496 1506 1626"> <p>The Proposed qualification will create skilled Technician for various establishments in different Sectors.</p> </td> </tr> <tr> <td data-bbox="339 1626 807 1688">Estimated uptake</td> <td data-bbox="807 1626 1506 1688"> <p>The present seating capacity is 36660.</p> </td> </tr> </tbody> </table>	Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)	Need of the qualification	<p><b>Plumbing</b> 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.</p> <p>Hence the qualification has been designed keeping in view to cater to the ever-increasing demand of skilled manpower in consultation with stakeholder.</p>	Industry Relevance	<p>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.</p>	Usage of the qualification	<p>The Proposed qualification will create skilled Technician for various establishments in different Sectors.</p>	Estimated uptake	<p>The present seating capacity is 36660.</p>
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Usage of the qualification	<p>The Proposed qualification will create skilled Technician for various establishments in different Sectors.</p>										
Estimated uptake	<p>The present seating capacity is 36660.</p>										
27	<p><b>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences.</b></p> <p>The qualification, originally designed for Craftsman Training Scheme is in existence for many years and approved by DGT (Regulatory Body) under Ministry of Skill Development and Entrepreneurship, Govt. of India.</p>										

28	<p><b>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</b></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><b>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</b></p> <ul style="list-style-type: none"> <li>• The research wing of CSTARI &amp; DGT reviews and updates the qualification, in consultation with industries and other stakeholders, on a regular basis by conducting trade committee meetings.</li> <li>• DGT will monitor any duplicity by comparing existing qualifications with upcoming ones in the National Qualifications Register (NQR) and relevant sectors.</li> </ul>

**SECTION 4**  
**EVIDENCE OF PROGRESSION**

**30** **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**

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.

```

graph LR
    A[Technician] --> B[Senior Technician]
    B --> C[Supervisor]
    C --> D[Manager]
    A --- E[Entrepreneur]
    B --- E
    C --- E
    D --- E
  
```

The diagram illustrates a career progression path. It starts with a box labeled 'Technician'. A double-lined arrow points to a box labeled 'Senior Technician'. Another double-lined arrow points to a box labeled 'Supervisor'. A third double-lined arrow points to a box labeled 'Manager'. Below these four boxes, a horizontal line connects them. From the center of this line, a double-lined arrow points down to a box labeled 'Entrepreneur'.