

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

Name: Shri Deepankar Mallick

Position in the organisation: Deputy Director General (C & P)

Address if different from above:

Tel number(s): 011-25847035

E-mail address: deepankar.mallick60@nic.in

List of documents submitted in support of the Qualifications File

1. Competency-based curriculum (Annexure 1)
2. Advertisements of different organisations for posts relevant to NTC in the trade

Model Curriculum to be added which will include the following:

- **Indicative list of tools/equipment to conduct the training:** Enclosed with curricula
- **Trainers qualification:** Indicated in the curriculum
- **Lesson Plan:** All NCVT 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 with support of Reference Books and IMPs developed by DGT.
- **Distribution of training duration into theory/practical/OJT component:** Indicated in the curriculum.

SUMMARY

1	Qualification Title	'Plumber'
2	Qualification Code, if any	N/A
3	NCO code and occupation	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 - Pipe Fitter 7212.0101 - Plumbers and Pipe Fitters, Other 7212.0102 - Plumber (Welder)/Plumbing (Sanitary Fixtures) Fitter Assistant 7233.1301 - Plumber (Welder) Assistant 7126.0301 - Plumber (Pumps and E/M Mechanic)
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term)	National Council for Vocational Training (NCVT) (long term qualification)
5	Body/bodies which will award the qualification	National Council for Vocational Training (NCVT) affiliates the ITIs as per DGT guidelines issued from time to time.
6	Body which will accredit providers to offer courses leading to the qualification	National Council for Vocational Training (NCVT)
7	Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)	Yes. The accreditation/ affiliation norms for all training providers are as per DGT guidelines issued from time to time with approval of NCVT.
8	Occupation(s) to which the qualification gives access	Plumber has a wide scope of Employability ranging from self-employment, contractual employment to Industrial jobs. On successful completion of this course, the candidates shall be gainfully employed in the industries for following occupations: • Plumber, General • Plumber, Operations • Plumber, General-Installation and Repair • Plumber, General Helper • Plumber, General Assistant • Plumber, Maintenance and Servicing

		Assistant - Plumber, Maintenance and Servicing - Pipe Layer/Plumber Pipeline - Pipe Fitter - Plumbers and Pipe Fitters, Other - Plumber (Welder)/Plumbing (Sanitary Fixtures) Fitter Assistant - Plumber (Welder) Assistant - Plumber (Pumps and E/M Mechanic)																														
9	Job description of the occupation	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	Licensing requirements	N/A																														
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)	N/A																														
12	Level of the qualification in the NSQF	Level 4																														
13	Anticipated volume of training/learning required to complete the qualification	<table> <tr> <th>Sl. No.</th><th>Course Element</th><th>Notional Training Hours</th></tr> <tr> <td>1</td><td>Professional Skill (Trade Practical)</td><td>1050</td></tr> <tr> <td>2</td><td>Professional Knowledge (Trade Theory)</td><td>252</td></tr> <tr> <td>3</td><td>Workshop Calculation & Science</td><td>84</td></tr> <tr> <td>4</td><td>Engineering Drawing</td><td>126</td></tr> <tr> <td>5</td><td>Employability Skills</td><td>110</td></tr> <tr> <td>6</td><td>Library & Extracurricular activities</td><td>58</td></tr> <tr> <td>7</td><td>Project work</td><td>160</td></tr> <tr> <td>8</td><td>Revision & Examination</td><td>240</td></tr> <tr> <td></td><td>Total</td><td>2080</td></tr> </table>	Sl. No.	Course Element	Notional Training Hours	1	Professional Skill (Trade Practical)	1050	2	Professional Knowledge (Trade Theory)	252	3	Workshop Calculation & Science	84	4	Engineering Drawing	126	5	Employability Skills	110	6	Library & Extracurricular activities	58	7	Project work	160	8	Revision & Examination	240		Total	2080
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14	Indicative list of training tools required to deliver this	As per Annexure enclosed in the curriculum																														

	qualification		
15	Entry requirements and/or recommendations and minimum age	Appeared 10 th class examination under 10+2 system of education.	
16	Progression from the qualification (Please show Professional and academic progression)	• Can take admission in diploma course in notified branches of Engineering by lateral entry. • Can join Apprenticeship programme in different types of industries leading to National Apprenticeship certificate (NAC). • Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs.	
17	Arrangements for the Recognition of Prior learning (RPL)	1. At present the students who have passed 10th class with minimum 3 years' experience in relevant field can appear for NCVT theory and practical semester examination directly. 2. The students who have passed SCVT examination in 'Plumber' trade can also appear for the NCVT Examination in the relevant semester and Trade directly.	
18	International comparability where known (research evidence to be provided)	1. Existence of any official document suggesting the comparability of the qualification with the qualifications in other countries is not known. 2. However, ITI passed out trainees are getting employment in many Gulf countries, European countries, Australia, New Zealand, Singapore etc.	
19	Date of planned review of the qualification.	March 2023	
20	Formal structure of the qualification		
	Mandatory components		
	Title of component and identification code/NOSs/Learning outcomes	Estimated size (learning hours)	Level
Semester – I			
(i)	Recognize & comply safe working practices, environment regulation and housekeeping.	40	3
(ii)	Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional	200	4

	accuracy. [Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$]		
(iii)	Inner & Outer Thread cutting on Metal & Studs and thread cutting on different types of pipes & fittings accessories.	40	4
(iv)	Join wood with carpenter's tools	80	4
(v)	Cutting Pipes of Different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing.	120	4
(vi)	Make a Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line.	80	4
(vii)	Cutting and Bending of Pipes using Plumber's tools and equipments.	120	4
(viii)	Join various type of PVC pipe by heat process or Welding.	40	4
(ix)	Make complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line.	40	
(x)	Cutting of Different Types of PVC Pipe, joining and laying.	40	4
(xi)	Perform Water analysis test, Water Pressure test and Water distribution system by using Pipe line.	40	
Semester – II			
(xii)	Aligning and laying of humed asbestos pipe line of different dia and fitting & maintenance of drainage pipe line.	80	4
(xiii)	Installation and maintenance of Electric different pump.	120	4
(xiv)	Join fittings for different purposes on PVC pipe line.	80	4
(xv)	Construction of inspection chamber, manhole, gutter, septic tank, socket etc.	40	4
(xvi)	Testing for pipe line as per site drainage pipe line layout.	40	4

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Plumber

(xvii)	Removal of leakage pipe line.	40	4
(xviii)	Installation, fixing & maintenance of different valve & cock.	40	4
(xix)	Installation & maintenance of water metre and water supply for fixture.	120	
(xx)	Method of bending for different materials & different pipe joint.	80	
(xxi)	Fitting and maintenance of Fixture at different place..	80	
(xxii)	Fitting, fixing & laying installation of hot & cold water pipe line and symboling.	40	
(xxiii)	Repairing & reconditioning of waste pipe line.	40	
(xxiv)	Repairing & reconditioning, scraping & painting of sanitary fittings pipe line.	40	
Revision, Project work and Examination		400	
	Sub Total (A)	2080	
	Optional components	N/A (All components are compulsory)	
	Title of component and identification code/NOSs/ Learning outcomes	Estimated size (learning hours)	Level
	Sub Total (B)		
<u>Total (A+B)</u>		<u>2080</u>	

SECTION 1

ASSESSMENT

21	Body/Bodies which will carry out assessment: National Council for Vocational Training (NCVT)																					
22	How will RPL assessment be managed and who will carry it out? 1. At present the students who have passed 10th class with minimum 3 years' experience can appear for NCVT theory and practical semester examination directly. 2. The students who have passed SCVT examination in 'Plumber' trade can also appear for the NCVT Examination in the relevant semester and Trade directly. NCVT will carry out the assessment and State Directorates advertise in newspapers for informing the prospective candidates.																					
23	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. (1) Assessment process: The assessment for the semester-based qualification is carried out by conducting formative assessments, and end-of-semester examinations. The internal assessments for theory subjects and practical are conducted by the concerned instructors for evaluating the knowledge and skill acquired by trainees and the behavioural transformation of the trainees. This internal 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, and sessional marks are awarded to them. Theory and practical examinations are conducted in Trade theory, Workshop Calculation & Science, Engineering Drawing and Employability Skills. The question papers for the theory Examinations contain objective type questions. Trade practical examinations are conducted by the respective State Governments. However, the question papers for the Trade practical are prepared by NCVT. The marking pattern and distribution of marks for the qualification are as under: <table><tr><th colspan="3">Marking Pattern</th></tr><tr><th>Sl. No.</th><th>Subject for the trade test</th><th>Maximum marks for the each subject</th></tr><tr><td>a)</td><td>Practical</td><td>300</td></tr><tr><td>b)</td><td>Trade Theory</td><td>200</td></tr><tr><td>c)</td><td>Employability Skills</td><td>Objective type Written test of 200 marks (Trade Theory 150 marks & Employability Skills 50 marks)</td></tr><tr><td>d)</td><td>Work shop Calculation and Science.</td><td>100</td></tr><tr><td>e)</td><td>Engineering Drawing</td><td>Objective Type Written test of 100 marks (Engineering Drawing 50 marks & Work shop Calculation and Science 50 marks)</td></tr></table>	Marking Pattern			Sl. No.	Subject for the trade test	Maximum marks for the each subject	a)	Practical	300	b)	Trade Theory	200	c)	Employability Skills	Objective type Written test of 200 marks (Trade Theory 150 marks & Employability Skills 50 marks)	d)	Work shop Calculation and Science.	100	e)	Engineering Drawing	Objective Type Written test of 100 marks (Engineering Drawing 50 marks & Work shop Calculation and Science 50 marks)
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d)	Work shop Calculation and Science.	100																				
e)	Engineering Drawing	Objective Type Written test of 100 marks (Engineering Drawing 50 marks & Work shop Calculation and Science 50 marks)																				

f)	Internal assessment	100
TOTAL:		700

(2) Minimum pass marks:

The minimum pass percentage for practical is 60% & minimum pass percentage of theory subjects is 40%. For the purposes of determining the overall result, 50% weightage is applied to the result of each semester examination.

(3) Testing and certifications for the course:

- OMR sheet based question paper.
- A panel of expert paper setters, who are graduates in the concerned field with minimum 5-7 years experience, is prepared for setting question papers for the Trade. The panel is vetted by the Member Secretary, NCVT.
- Paper setters are appointed from the panel after the approval of the competent authority for setting the question paper.
- The question papers are then moderated by the Board of Moderation to see if the paper is set as per the requirement and syllabus.
- The manuscripts of the moderated question papers are sent to Government Printing Presses for printing.
- Printed question papers, packed in sealed covers, are despatched to Banks/Police Stations for keeping in safe custody.
- The question papers are handed over to the Chairman/Principal of the Testing Centre two hours before the commencement of the Examination.
- An Examination Board consisting of representatives of industry/Employer/State Government are set up to supervise and monitor the conduct of Examinations at every Centre.
- Theory and practical Examinations are carried out with invigilators/examiners with the overall supervision of the Examination Board.
- Examiners called for evaluation of practical should have minimum technical qualification of a Diploma in the respective engineering field. However, when diploma holders not available, the qualification is suitably relaxed.
- Examiners for practical Examinations are appointed preferably from Polytechnics/ Engineering colleges/ Industry of repute/ Government Departments or from amongst retired qualified personnel possessing requisite qualifications and sufficient experience in the trade/discipline.
- Each State Directorate prepares a panel of Examiners according to the norms as mentioned above and the Examiners are appointed from the panel.
- Flying squads from State Governments as well as the Central Government are constituted to check malpractices during the conduct of Examinations.
- OMR based answer sheets are evaluated by the third party evaluator only. Third party evaluator is selected for three years by open bidding process.
- Evaluation of every practical examination is carried out by the concerned examiner (from industry/ polytechnics) with the overall supervision of the Examination Board in a free and fair manner as per the assessment criteria.
- Till 2014, the marks were compiled by the State Governments as per NCVT guidelines and the results were declared by the State Governments. At present, the marks are

	compiled by NCVT on its portal www.ncvtmis.gov.in and the results are declared by the State Governments. - The successful trainees are awarded National Trade Certificates. 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 assessable 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 assessable 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 formative discussions to assess understanding and evaluating records and reports. The ultimate objective of the assessment is to assess the candidates as per the defined assessment criteria for the assessable/ 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 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 and language skills 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 - Evaluation of Theory Examinations is done by third-part agency. Third party evaluator is selected for three years by open bidding process. - Trade Practical is examined by External Examiner (as explained above).
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Please attach most relevant and recent documents giving further information about assessment and/or RPL.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE**Means of assessment 1**

Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Means of assessment 2

Add boxes as required.

Pass/Fail

The minimum pass percentage is 40% for each Theory Examination and 25% for each part/section of the Examination separately, and 60% marks for each Trade practical Examination.

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.

24. Assessment evidences

Title of Component: Plumber

GENERIC LEARNING/ ASSESSABLE OUTCOME:

Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome
1. Recognize & comply safe working practices, environment regulation and housekeeping.	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	1.2 Recognize and report all unsafe situations

		according to site policy.
	1.3	Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1.4	Identify, handle and store / dispose off dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	1.5	Identify and observe site policies and procedures in regard to illness or accident.
	1.6	Identify safety alarms accurately.
	1.7	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.
	1.8	Identify and observe site evacuation procedures according to site policy.
	1.9	Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1.10	Identify basic first aid and use them under different circumstances.
	1.11	Identify different fire extinguisher and use the same as per requirement.
	1.12	Identify environmental pollution & contribute to avoidance of same.
	1.13	Take opportunities to use energy and materials in an environmentally friendly manner
	1.14	Avoid waste and dispose waste as per procedure
	1.15	Recognize different components of 5S and apply the same in the working environment.
2. Understand, explain different mathematical calculation & science in the field of study including basic electrical and apply in day to day work. <i>[Different mathematical calculation & science - Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine,]</i>	2.1	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.
	2.2	Measure dimensions as per drawing
	2.3	Use scale/ tapes to measure for fitting to specification.
	2.4	Comply given tolerance.
	2.5	Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	2.6	Ensure dimensional accuracy of assembly by using different instruments/gauges.
	2.7	Explain basic electricity, insulation & earthing.

3. Interpret specifications, different engineering drawing and apply for different application in the field of work. <i>[Different engineering drawing- Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Estimation of material, Electrical & electronic symbol]</i>	3.1	Read & interpret the information on drawings and apply in executing practical work.
	3.2	Read & analyse the specification to ascertain the material requirement, tools, and machining /assembly /maintenance parameters.
	3.3	Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.
4. Select and ascertain measuring instrument and measure dimension of components and record data.	4.1	Select appropriate measuring instruments such as micrometers, verniercalipers, dial gauge, bevel protector and height gauge (as per tool list).
	4.2	Ascertain the functionality & correctness of the instrument.
	4.3	Measure dimension of the components & record data to analyse the with given drawing/measurement.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	5.1	Explain the concept of productivity and quality tools and apply during execution of job.
	5.2	Understand the basic concept of labour welfare legislation and adhere to responsibilities and remain sensitive towards such laws.
	5.3	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.	6.1	Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain sensitive to avoid environment pollution.
	6.2	Dispose waste following standard procedure.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	7.1	Explain personnel finance and entrepreneurship.
	7.2	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 familiarizes with the Policies /Programmes & procedure & the available scheme.
	7.3	Prepare Project report to become an entrepreneur for submission to financial institutions.
8. Plan and organize the work related to the occupation.	8.1	Use documents, drawings and recognize hazards in the work site.

	8.2	Plan workplace/ assembly location with due consideration to operational stipulation
	8.3	Communicate effectively with others and plan project tasks
	8.4	Assign roles and responsibilities of the co-trainees for execution of the task effectively and monitor the same.

Specific Assessable Outcome:

LEARNING / ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
SEMESTER-I	
9. 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: $\pm 0.25\text{mm}$]</i>	10.1 Plan & Identify tools, instruments and equipments for marking and make this available for use in a timely manner.
	10.2 Select raw material and inspect visually for defects.
	10.3 Mark as per specification applying desired mathematical calculation and observing standard procedure.
	10.4 Measure all dimensions in accordance with standard specifications and tolerances.
	10.5 Identify Hand Tools for different fitting operations and make these available for use in a timely manner.
	10.6 Prepare the job for Hack sawing, chiselling, filing, drilling, tapping, grinding.
	10.7 Perform basic fitting operations viz., Hack sawing, filing, drilling, tapping and grinding to close tolerance as per specification to make the job.
	10.8 Observe safety procedure during above operation as per standard norms and company guidelines.
	10.9 Check for dimensional accuracy as per standard procedure.
	10.10 Avoid waste, ascertain unused materials and components for disposal, store these in an environmentally appropriate manner and prepare for disposal.
10. Inner & Outer Thread cutting on Metal & Studs and then thread cutting on different types of pipes	9.1 Identify Hand Tools for Plumber work.
	9.2 Identify Hand Tools for Cutting Inner thread and Outer thread.
	9.3 Identify the pipe fittings.

& fittings accessories.	9.4	Perform Inner thread cutting as per drawing.
	9.5	Perform Outer thread cutting as per drawing.
	9.6	Prepare the Pipe line circuit with fittings as per drawing.
	9.7	Observe safety procedure during thread cutting as per standard norms and company guidelines.
	9.8	Check and verify the job as per drawing.
11. Join wood with carpenter's tools	11.1	Identify the woods and character.
	11.2	Identify the Carpenter's hand Tools.
	11.3	Prepare the job as per drawing.
	11.4	Observe safety procedure during wood cutting, sawing, chiselling, planning as per standard norms and company guidelines.
	11.5	Check and verify the job as per drawing.
12. Cutting Pipes of Different Dia in different angle and Joining of pipes by gas welding, Soldering and Brazing .	12.1	Identify different components/parts of Gas (oxy-acetylene) machine, collect desired information and set each components/parts as per standard procedure.
	12.2	Observe safety/ precaution during operation.
	12.3	Select appropriate material & plan for gas cutting & joining operation.
	12.4	Cut & join metal parts / mechanical components as per specification observing standard procedure.
	12.5	Check cut portion/ joined part to ascertain proper welding.
	12.6	Identify hand tools for Soldering and Brazing.
	12.7	Mark and develop various forms as per drawing using sheet metals.
	12.8	Make of simple items with sheet metal as per drawing.
	12.9	Perform Soldering and Brazing.
	12.10	Observe safety procedure during operation
	12.11	Check and verify the job as per drawing.
13. Make a Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line.	13.1	Identify different types of Mason's hand tools.
	13.2	Identify the Construction materials.
	13.3	Make a simple construction of different type of Brick joints with mortar.
	13.4	Prepare a job Masonry work and RCC casting as per drawing.
	13.5	Check & verify the job as per drawing.
14. Cutting and Bending of Pipes using Plumber's tools and	14.1	Identify different types of Plumber's hand tools.
	14.2	Demonstrate care of hand tools.
	14.3	Cutting the pipe with Pipe cutter.

equipments.	14.4	Demonstrate working of Bending Machine and accessories.
	14.5	Make desired bend on pipe as per drawing.
	14.6	Check the job as per Drawing.
15. Various type of PVC pipe joint by heat process or Welding.	15.1	Identify different types of PVC Pipe.
	15.2	Demonstrate working of Electric Welding Machine and accessories for PVC pipes
	15.3	Simple joint of PVC pipe by Welding Machine.
	15.4	Making a job with PVC fittings and pipe as per drawing.
	15.5	Observe safety procedure during operation.
16. Make complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line.	16.1	Identify different types of Joints.
	16.2	Identify different types of tools different types of Joints.
	16.3	Make a Flange joint as per drawing.
	16.4	Make a Detachable joint as per drawing.
	16.5	Make a Spigot & Socket joint as per drawing.
	16.6	Make a Socket joint as per drawing.
	16.7	Identify GI fittings.
	16.8	Identify Cocks & Valves.
	16.9	Identify Tools for fixing of fittings with GI pipe, Cocks & Valves.
	16.10	Make a simple job on GI Pipe with fittings, Cocks, and Valves as per drawing.
	16.11	Check & verify the job as per drawing.
17. Cutting of Different Types of PVC Pipe, joining and laying.	17.1	Identify Tools and materials for Cutting & Joining of PVC pipes.
	17.2	Make a job of Pipe line Circuit as per drawing.
	17.3	Check & verify the job as per drawing.
18. Perform water analysis test, Water Pressure test and Water distribution system by using Pipe line.	18.1	Prepare water for test.
	18.2	Preparation of water analysis kits.
	18.3	Test water for pH, TDS, Temperature as per requirements.
	18.4	Preparation of Hydraulic Pressure Test Machine.
	18.5	Pressure test on Cistern and Tank.
	18.6	Check and verify test result.
<u>Semester- II</u>		
19. Aligning and laying of humed asbestos pipe line of different dia and fitting & maintenance of drainage pipe line.	19.1	Plan and identify tools, instrument and equipments for marking and make this available for use on a timed manner.
	19.2	Select of raw materials and visually inspect for defects.

	19.3	Check the defect of humed and asbestos pipe line.
	19.4	Prepare the job, tools & raw materials.
	19.5	Observe safety procedure for desired operation as per standard norms and company guidelines.
	19.6	Check for dimensional accuracy as per standard procedure.
20. Installation and maintenance of different Electric pump.	20.1	Select the pump and inspect for defects.
	20.2	Select the tools, instrument and equipment for the pump instalment and repairing.
	20.3	Check and calculate output of the pumps.
	20.4	Install pump Observing standard procedure and method as per specification using appropriate tools and raw material.
	20.5	Check performance of the pump.
21. Join fittings for different purposes on PVC pipe line.	21.1	Identify tools, instrument and equipments for marking and make this available for use in a timely manner.
	21.2	Mark as per specification applying desired mathematical calculation and observing standard procedure.
	21.3	Join fittings for desired purpose on PVC pipe line.
	21.4	Measure all dimensions in accordance with the drawing.
	21.5	Observe safety procedure during desired operation as per standard norms.
	21.6	Check for dimensional accuracy as per standard procedure.
22. Construction of inspection chamber, manhole, gutter, septic tank, socket etc.	22.1	Plan and identify tools and equipment for desired purpose and make this available for use in a timely manner.
	22.2	Select raw materials and inspect for defect.
	22.3	Mark as per drawing applying desired mathematical calculation and observing standard procedure.
	22.4	Construct inspection chamber, manhole, gutter, septic tank, socket etc. as per drawing.
	22.5	Measure all dimensions in accordance with standard specification and tolerance.
	22.6	Observe safety procedure during desired operation as per standard norms.
	22.7	Check for dimensional accuracy as per standard procedure.
23. Testing for pipe line as per site	23.1	Identify tools and equipment for testing pipe

drainage pipe line layout.	line.
	23.2 Prepare the job for different testing for pipe line.
	23.3 Test pipe line observing standard procedure.
	23.4 Observe safety precaution during operation.
24. Removal of leakage pipe line.	24.1 Identify the leakage pipe.
	24.2 Remove out pipe leakages as per standard procedure.
	24.3 Observe safety procedure during desired operation as per standard norms.
	24.4 Check performance after removal of leakages.
25. Installation, fixing & maintenance of different valve & cock.	25.1 Plan and identify tools, instrument & equipments for Installation, fixing & maintenance of different valve & cock and make this available for use in a timely manner.
	25.2 Select valve and cock, inspect for defects.
	25.3 Install desired Valve & Cock observing standard procedure.
	25.4 Identify the problem with valve & cock fitted and solved the problem.
	25.5 Observe safety procedure during the operation as per standard norms.
	25.6 Check different parameters and functionality of the system.
26. Installation & maintenance of water metre and water supply for fixture.	26. 1. Plan and identify tools, instrument & equipments for Installation, fixing & maintenance of different water metre and water supply for fixture and make this available for use in a timely manner.
	26. 2. Select water metre and water supply for fixture, inspect for defects.
	26. 3. Install desired water metre and water supply for fixture observing standard procedure.
	26. 4. Identify the problem with water metre and water supply for fixture fitted and solved the problem.
	26. 5. Observe safety procedure during the operation as per standard norms.
	26. 6. Check different parameters and functionality of the system.
27. Method of bending for different materials & different pipe joint.	27.1 Plan and identify tools, instrument & equipments for marking and make this available for use in a timely manner.
	27.2 Select desired material and machine and inspect for defects.
	27.3 Bend G.I. pipe as per drawing and measurement.
	27.4 Bend PVC pipe of different diameter in different

		angle.
	27.5	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	27.6	Check for dimensional accuracy as per drawing.
28. Fitting and maintenance of Fixture at different place.	28.1	Plan and identify tools, instrument & equipments for marking and make this available for use in a timely manner.
	28.2	Select raw material and inspect for defects.
	28.3	Cut & join C.I. pipe for waste pipe line in accordance with standard specification and drawing.
	28.4	Fix external soil pipe as per drawing observing standard procedure.
	28.5	Fix rain water gutter outlet and ground pipe as per standard norms and schedule drawing.
	28.6	Check different parameters and functionality of the system.
29. Fitting, fixing & laying installation of hot & cold water pipe line and symboling.	29.1	Plan and identify tools, instrument & equipments for desired work and make this available for use in a timely manner.
	29.2	Install pipe line for distribution of hot & cold water according to drawing.
	29.3	Install hot water system & solar water heating system in accordance with standard specification and drawing.
	29.4	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	29.5	Check different parameters and functionality of the system.
30. Repairing & reconditioning of waste pipe line.	30.1	Plan and identify tools, instrument & equipments for desired work and make this available for use in a timely manner.
	30.2	Perform fitting of different trap, valve, cistern etc.
	30.3	Construct over head tank as per drawing and measurement.
	30.4	Perform pressure test by hydraulic test machine.
	30.5	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	30.6	Check different parameters and functionality of the system.

31. Repairing & reconditioning, scraping & painting of sanitary fittings pipe line.	31.1	Plan and identify tools, instrument & equipments for desired work and make this available for use in a timely manner.
	31.2	Perform cleaning of sanitary pipe line and remove corrosion from pipe line.
	31.3	Remove corrosion from pipe line and Perform scraping & painting of pipe line in accordance with standard guidelines.
	31.4	Replace broken or cracked sanitary fitting.
	31.5	Observe safety procedure during desired operation as per standard norms and schedule drawing.
	31.6	Check different parameters and functionality of the system.

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	Familiar, Predictable, Routine Situations of Clear Choice - Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy. [Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$] - Cutting and Bending of Pipes using Plumber's tools and equipments. - Join various type of PVC pipe by heat process or Welding. - Installation and maintenance of Electric different pump. - Join fittings for different purposes on PVC pipe line. - Installation & maintenance of water metre and water supply for fixture. - Method of bending for different materials &	In all the learning outcomes for example 'Plan and organize the work to make job as per specification applying different types of basic fitting operation and Check for dimensional accuracy. [Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$].' and 'Join fittings for different purposes on PVC pipe line.', the learner will be required to choose appropriate tools, equipments, 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. Thus the learner requires to demonstrate ability to work in familiar, predictable, routine, situation of clear choice. And the NSQF level as per this descriptor will be 4.	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
	different pipe joint. - Recognize & comply safe working practices, environment regulation and housekeeping. - Understand and explain different mathematical calculation & science in the field of study including basic electrical. [Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine] - Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth. - Plan and organize the work related to the occupation.		
Professional knowledge	Knowledge of facts in a field of work or study - Plumber's common hand tools - names, description and material from which they are made. - Description of simple fitting operations hack sawing, punching and filing. - About different types of pipes-GI, CI, DI, PVC/ CPVC, PPR, AC and HDPE etc.	The learner will need to be well versed with Factual knowledge of field of Plumbing work for example 'Plumber's common hand tools - names, description and material from which they are made.', 'Description of simple fitting operations hack sawing, punching and filing.' and 'About different types of pipes-GI, CI, DI, PVC/ CPVC, PPR, AC and HDPE etc.', 'Types of fittings for different joints & different pipes'	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
	• Carpenter works, Gas Welding, Mason's works. • Description of plumber tools and Equipments- Ratchet brace, Threading die, Pipe wrench, Sliding wrench, Spanner set, Chain Wrench etc. and their safety. • Equipments and tools for hot gas welding and electric hot plate for PPR pipe joints. • Types of fittings for different joints & different pipes • Different kinds of Joints, Fittings and Materials in joining pipes • Composition of Water • Hard & Soft water, temporary hardness & permanent hardness. • Use of hummed and asbestos pipes of different sizes. • Description of various pipe joints- straight, Branch , Taft and blow, Expansion joints. Solders and fluxes used in joints. • Description of Plumber's materials Lead, tin, Zinc, solder, copper, red lead etc. and their	Hence NSQF Level is 4 for this descriptor.	

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
	uses. • Description of pipe dies, their uses, care and precaution. • Inspection chamber, septic tank, description of drains, cess pools, soak pits etc. • Method of dismantling and renewal of the valves and pipes. Leaks in pipes and noises in plumbing. • Erecting rain water and drainage pipe system • Method of bending galvanized and other heavy pipes. • Concept of heat and Temperature. • Sensor system for urinals and was basin, etc.		
Professional skill	• Inner & Outer Thread cutting on Metal & Studs and thread cutting on different types of pipes & fittings accessories. • Make a Masonry brick wall and RCC casting. Brick wall cutting for concealing pipe line. • Make complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line. • Aligning and laying of humed asbestos pipe line of different dia and fitting & maintenance of	The learner after the trainer will be able to work independently and recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool as per the job given to them. This can be ascertained by reading the Assessment Criteria. 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.	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
	drainage pipe line. • Join fittings for different purposes on PVC pipe line. • Construction of inspection chamber, manhole, gutter, septic tank, socket etc. • Removal of leakage pipe line. • Installation, fixing & maintenance of different valve & cock. • Fitting and maintenance of Fixture at different place.. • Repairing & reconditioning, scraping & painting of sanitary fittings pipe line. • Interpret specifications, different engineering drawing and apply for different application in the field of work. [Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Estimation of material, Electrical & electronic symbol] • Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	Hence NSQF Level is 4 for this descriptor.	

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
Core skill	Language to communicate written or oral, with required clarity - 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. Desired Mathematical Skills - Demonstrate basic mathematical concept and principles to perform practical operations. - Basic skills in Arithmetic, Algebra, Trigonometry and statistics and apply knowledge of specific area to perform practical operations. Basic understanding of social political and natural environment	The work of Plumber involves Repair & Installation of Pipelines and their maintenance which requires competence in written language with required clarity in order to understand the work enlisted in the job card/service card. The learner will also need to communicate with team supervisor to understand the job and explain ones work which requires competence in oral language, with required clarity. The learner will also need to have basic understanding of social political and natural environment as mentioned in the learning outcome for example 'Comply environment regulation and housekeeping' Hence NSQF Level is 4 for this descriptor	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
	- Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such 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. - Explain entrepreneurship and manage/organize related task in day to day work for personal & societal growth. - Comply 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.		
Responsibility	- Join wood with carpenter's tools. - Cutting Pipes of Different Dia in different angle	The Plumber has to perform all the learning outcomes independently and as per requirements of the job, hence is responsible for own work and	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
	and Joining of pipes by gas welding, Soldering and Brazing. • Make complete pipe line circuit with different types of Joints and fixing Cocks & valve on Pipe line. • Cutting of Different Types of PVC Pipe, joining and laying. • Perform Water analysis test, Water Pressure test and Water distribution system by using Pipe line. • Construction of inspection chamber, manhole, gutter, septic tank, socket etc. • Testing for pipe line as per site drainage pipe line layout. • Removal of leakage pipe line. • Fitting, fixing & laying installation of hot & cold water pipe line and symboling. • Repairing & reconditioning of waste pipe line. • Select and ascertain measuring instrument and measure dimension of components and record data. • Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve	learning. Hence NSQF Level is 4 for this descriptor.	

NSQF QUALIFICATION FILE

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
	productivity & quality.		

NSQF QUALIFICATION FILE*Plumber***OPTION B**

Title/Name of qualification/component: Enter the title here number			Level: Add level
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
Process			
Professional knowledge			
Professional skill			
Core skill			
Responsibility			

SECTION 3

EVIDENCE OF NEED

26	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? <table border="1" data-bbox="341 472 1209 1379"> <thead> <tr> <th data-bbox="341 472 627 613">Basis</th><th data-bbox="627 472 1209 613">In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</th></tr> </thead> <tbody> <tr> <td data-bbox="341 613 627 777">Need of the qualification</td><td data-bbox="627 613 1209 777">The proposed qualification is running in the system for last few decades and passed out candidates are engaged in various related industries.</td></tr> <tr> <td data-bbox="341 777 627 1099">Industry Relevance</td><td data-bbox="627 777 1209 1099">The job role defined for the qualification is as per the National Qualification of Occupation 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. This justifies the qualification is very much relevance for industry.</td></tr> <tr> <td data-bbox="341 1099 627 1263">Usage of the qualification</td><td data-bbox="627 1099 1209 1263">The Proposed qualification is running in ITI system across the country successfully over the period of time.</td></tr> <tr> <td data-bbox="341 1263 627 1379">Estimated uptake</td><td data-bbox="627 1263 1209 1379">This is a New Trade. The present seating capacity is approximately 16874.</td></tr> </tbody> </table>	Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)	Need of the qualification	The proposed qualification is running in the system for last few decades and passed out candidates are engaged in various related industries.	Industry Relevance	The job role defined for the qualification is as per the National Qualification of Occupation 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. This justifies the qualification is very much relevance for industry.	Usage of the qualification	The Proposed qualification is running in ITI system across the country successfully over the period of time.	Estimated uptake	This is a New Trade. The present seating capacity is approximately 16874.
Basis	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)										
Need of the qualification	The proposed qualification is running in the system for last few decades and passed out candidates are engaged in various related industries.										
Industry Relevance	The job role defined for the qualification is as per the National Qualification of Occupation 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. This justifies the qualification is very much relevance for industry.										
Usage of the qualification	The Proposed qualification is running in ITI system across the country successfully over the period of time.										
Estimated uptake	This is a New Trade. The present seating capacity is approximately 16874.										
27	Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences. This qualification is run by Ministry of Skill Development and Entrepreneurship and different industries under the related line ministry are also generally consulted before finalizing the curricula.										
28	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 The qualification is originally designed and approved by NCVT for the Craftsmen Training Scheme and is in existence for the last 60 years. NCVT has been entrusted with the responsibilities of prescribing standards and curricula for craftsmen training, advising the Government of India on the overall policy and programmes, conducting All India Trade Tests and awarding National Trade Certificates.										

29	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 • Mentor Council (MC) for the Construction, Construction Material & Real Estate Sector was formed in 2014 to review the curriculum of this qualification under the sector. • CSTARI, the research wing of DGT, reviews and updates the qualification, in consultation with industries and other stakeholders, on a regular basis by conducting trade committee meetings. • DGT will keep on doing continuous comparative study in the trade by referring to relevant upcoming qualifications in the National Qualifications Register (NQR) and relevant sectors.
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Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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? <i>Show the career map here to reflect the clear progression</i> • Qualifying trainee will obtain an NCVT Certificate in Plumber trade which gives the following options of progression to the trainee: - Can take admission in diploma course in notified branches of Engineering by lateral entry. - National Apprenticeship Certificate will be designed in due course of time as this a new trade. - Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs. - Entrepreneur.
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Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.