

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	'Fire Technology and Industrial Safety Management'		
2	Qualification Code, if any	DGT/1029		
3	NCO code and occupation	3119.1000- Fire Fighters 5411.9900- Fire Inspector		
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	Fire Technology and Industrial Safety Management 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: <ul style="list-style-type: none"> • Fire Fighters • Fire Inspector 		
9	Job description of the occupation	Fire Technology and Industrial Safety Management inspects different structures to ensure compliance with central/state government laws and with approved plans, specifications and standards, or inspect fire prevention systems and investigate fire sites to determine cause of fire.		
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	Sl. No.	Course Element	Notional Training Hours

		1.	Professional Skill (Trade Practical)	1290
		2.	Professional Knowledge (Trade Theory)	258
		3.	Employability Skills	110
		4.	Extracurricular activities	62
		5.	Project work	120
		6.	Revision & Examination	240
			Total	2080
14	Indicative list of training tools required to deliver this qualification	As per Annexure enclosed in the curriculum		
15	Entry requirements and/or recommendations and minimum age	<p>a. Passed class 10th class Examination under 10+2 system of Education or its equivalent.</p> <p>b. The minimum physical requirements are</p> <ul style="list-style-type: none"> i. Height - 165 cm ii. Weight - 52 kg iii. Chest - Normal 81 cm - Expanded 85 cm iv. A registered MBBS doctor must certify that the candidate is medically fit to undertake the course 		
16	Progression from the qualification (Please show Professional and academic progression)	<ul style="list-style-type: none"> • 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)	<ol style="list-style-type: none"> 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 'Fire Technology and Industrial Safety Management' 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)	<ol style="list-style-type: none"> 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
SPECIFIC LEARNING OUTCOMES			
Semester – I			
(i)	Apply safe working practices.	40	
(ii)	Select suitable chemicals (industrial, inflammable liquid) usable on the workplace.	80	3
(iii)	Identify, select & execute the application of different types of extinguisher, hose & hose fittings.	120	4
(iv)	Select and prepare the hydrant and pump system for proper application.	80	4
(v)	Plan and execute the concept of hydraulics in work place.	40	4
(vi)	Select and categorize electrical hazard and risk & its mitigation.	40	4
(vii)	Methods of using ladder in practical field.	40	4
(viii)	Select the BA set and its application in appropriate place.	40	3
(ix)	Identify and use of small and special gears.	40	4
(x)	Plan and execute elementary treatment at any incidental spot.	40	4
(xi)	Utilization of knots and hitches in different special job and fire.	40	4
(xii)	Plan and execute to up lift various gears with proper techniques. Introduction to Hazard and Risk evaluation & the proper method of rescue & F.F.	40	4
(xiii)	Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management.	40	4
(xiv)	Select & apply provisions related to safety, health and welfare in respect of Factory Act, 1948.	80	4
(xv)	Assessment of available resources and their proper use.	40	4
(xvi)	Interpret appropriate techniques of	40	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

	CPR.		
(xvii)	Identify the importance of lighting, ventilation, work related stress and its measurement.	40	4
Semester – II			
(xviii)	Plan and execute fixed fire fighting installations for their effective utilization.	40	3
(xix)	Select and use PPE, its care and maintenance.	40	4
(xx)	Select Automatic Fire Detection cum Alarm System to plan their effective utilization.	40	4
(xxi)	Plan and execute fire station administration.	40	4
(xxii)	Identify communication system in different organization and their scope of use.	80	4
(xxiii)	Accustomed with different fire situations and fire fighting using extinguishers.	40	4
(xxiv)	Plan and execute disaster response practices, IRS/JRT and salvage technique.	80	4
(xxv)	Select and apply correct rescue method.	40	4
(xxvi)	Categorize building construction that can ensure fire and life safety.	40	4
(xxvii)	Plan and execute fire protection measures based on construction and occupancy.	120	4
(xxviii)	Plan and survey Airport & Aircraft, port and ship for rescue system and fire fighting system on it.	80	4
(xxix)	Identify occupational hazards associated with different dangerous chemicals, dust, gases, mist, vapours etc. to plan and execute rescue operations in these cases.	40	4
(xxx)	Observed safety precautions while working at height, confined place and work permit system.	40	4
(xxxix)	Identify the characteristics of various	40	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

	fire suppression agents including water. Understand safety in manual and mechanical handling of materials.		
(xxxii)	Analysis hazard evaluation and risk analysis exercise.	80	4
Physical Training, Revision, Project work and Examination		400	4
	Sub Total (A)	2080	4
	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>	<u>4</u>

**SECTION 1
ASSESSMENT**

21	<p>Body/Bodies which will carry out assessment: National Council for Vocational Training (NCVT)</p>																				
22	<p>How will RPL assessment be managed and who will carry it out?</p> <ol style="list-style-type: none"> 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 'FIRE TECHNOLOGY & INDUSTRIAL SAFETY MANAGEMENT' 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	<p>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.</p> <p>(1) Assessment process:</p> <p>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 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.</p> <p>The marking pattern and distribution of marks for the qualification are as under:</p> <table border="1" data-bbox="312 1536 1401 2045"> <thead> <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> </thead> <tbody> <tr> <td>a)</td> <td>Practical</td> <td>100</td> </tr> <tr> <td>b)</td> <td>Trade Theory</td> <td rowspan="2">80 Objective type Written test of 80 marks (Trade Theory 30 marks & Employability Skills 50 marks)</td> </tr> <tr> <td>c)</td> <td>Employability Skills</td> </tr> <tr> <td>d)</td> <td>Internal assessment</td> <td>20</td> </tr> <tr> <td colspan="2">TOTAL:</td> <td>200</td> </tr> </tbody> </table>	Marking Pattern			Sl. No.	Subject for the trade test	Maximum marks for the each subject	a)	Practical	100	b)	Trade Theory	80 Objective type Written test of 80 marks (Trade Theory 30 marks & Employability Skills 50 marks)	c)	Employability Skills	d)	Internal assessment	20	TOTAL:		200
Marking Pattern																					
Sl. No.	Subject for the trade test	Maximum marks for the each subject																			
a)	Practical	100																			
b)	Trade Theory	80 Objective type Written test of 80 marks (Trade Theory 30 marks & Employability Skills 50 marks)																			
c)	Employability Skills																				
d)	Internal assessment	20																			
TOTAL:		200																			

(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.

<p>Overall assessment strategy:</p> <p>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.</p> <p>Specific Arrangements for assessment:</p> <ul style="list-style-type: none">• Assessment is outcome-based.• There are formative and summative assessments in Theory and Practical.• Assessment is carried out in Trade theory, Trade Practical and Employability Skills.• While Trade Theory and Trade Practical are used for assessing Trade-related jobs 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. <p>Quality assurance activities:</p> <ul style="list-style-type: none">• Question papers are set by external paper setters• Evaluation of Theory Examinations is done by third-party agency. Third party evaluator is selected for three years by open bidding process.• Trade Practical is examined by External Examiner (as explained above).

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 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.

Title of Component: Fire Technology and Industrial Safety Management

GENERIC LEARNING/ ASSESSABLE OUTCOME:

Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome
1. Apply safe working practices	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to policy.
	1.2 Recognize and report all unsafe situations according to policy.
	1.3 Identify and take necessary precautions on fire and safety hazards and report according to work policy and procedures.
	1.4 Identify, handle and store / dispose-off dangerous goods and substances according to policy and procedures following safety regulations and requirements.
	1.5 Identify and observe 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 accident/injury procedures.
	1.8 Identify and observe 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.
2. Comply environment regulation and housekeeping	2.1 Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	2.2 Deploy environmental protection legislation & regulations.
	2.3 Take opportunities to use energy and materials in an environmentally friendly manner.
	2.4 Avoid waste and dispose waste as per procedure.
	2.5 Recognize different components of 5S and apply the same in the working environment.

3. Interpret & use company and technical communication.	3.1 Obtain sources of information and recognize information.
	3.2 Use and draw up technical drawings and documents.
	3.3 Use documents and technical regulations and occupationally related provisions.
	3.4 Conduct appropriate and target oriented discussions with higher authority and within the team.
	3.5 Present facts and circumstances, possible solutions & use English special terminology.
	3.6 Resolve disputes within the team
	3.7 Conduct written communication.
4. Understand and apply the concept in productivity, quality tools, and labour welfare legislation in day to day work to improve productivity & quality.	4.1 Semester examination to test the concept in productivity, quality tools and labour welfare legislation.
	4.2 Applications will be assessed during execution of assessable outcome.
5. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	5.1 Semester examination to test knowledge on energy conservation, global warming and pollution.
	5.2 Their applications will be assessed during execution of assessable outcome.
6. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	6.1 Semester examination to test knowledge on personnel finance, entrepreneurship.
	6.2 Their applications will be assessed during execution of assessable outcome.
7. Utilize basic computer applications and internet to take benefit of IT developments in the industry.	7.1 Semester examination to test knowledge on basic computer working, basic operating system and uses internet services.
	7.2 Their applications will be assessed during execution of assessable outcome.

Specific Assessable Outcome:

LEARNING / ASSESSABLE OUTCOME	ASSESSMENT CRITERIA
SEMESTER-I	
8. Identify and Select suitable chemicals (industrial, inflammable liquid) usable on the workplace.	8.1 Identify various types of acids in the trade.
	8.2 Identify the type of acids and their uses in the place.
	8.3 Select the suitable acids on the workplace.
	8.4 Analyzed the effect of acids on the suitable jobs
9. Identify, select & execute the application of different types of extinguisher, hose & hose fittings.	9.1 Identify of fire and types of extinguishers.
	9.2 Install the wall fitting and test it.
	9.3 Technique of fire extinction smoothing cooling and Starvation.
	9.4 Observe the safety/precaution during the operation Extinguisher.
	9.5 identify type of suction and delivery hoses.
	9.6 Causes of hose decay & its prevention
	9.7 Use of percolating & non-percolating hose
	9.8 Identify of hose reel, causes of decay and its care & maintenance.
	9.9 Importance of hose reel hose in first aid fire fighting in buildings and industries.
	9.10 Plan of work in compliance with standard tests of delivery hoses.
	9.11 Standard test of Suction hose
	9.12 Identify the different groups of hose fitting.
	9.13 Measure of deep lift suction fittings.
	9.14 Type of Breechings and its uses.
	9.15 Identify the hose ramps, care and maintenance of hose fittings.
10. Select and prepare the hydrant and pump system for proper application.	10.1 Knowledge of Hydrant and Water supplies,
	10.2 Identify the hydrant gear and equipment.
	10.3 Observe the making of hydrants and testing.
	10.4 Prepare the care and maintenance of operation.
	10.5 Identify the common type in use.
	10.6 Methods of priming.
	10.7 Select and testing fault finding.
	10.8 Working of centrifugal pump.
	10.9 Observe care and maintenance of pump.
11. Plan and execute the working	11.1 Check the hydraulic system

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

of hydraulics system in work place.	11.2 Check the pressure
	11.3 Calculate the water capacity of tank
	11.4 Check the working of flow meter
12. Select and categorize electrical hazard and risk & its mitigation.	12.1 Identify common causes of electrical fire
	12.2 Select remedial measures
	12.3 Identify electrical hazards
	12.4 Apply PPE
	12.5 Follow the electrical document for safety.
13. Methods of using ladder in practical field.	13.1 Select the appropriate ladder.
	13.2 Pitching of ladder.
	13.3 Pitching of ladder.
	13.4 Climbing the ladder.
	13.5 Use leg Lock.
14. Select the BA set and its application in appropriate place.	14.1 Identify and operate B. A. set and relevant drill
	14.2 Donning & doffing of SCBA.
	14.3 SCBA Operation & Emergency Procedures.
	14.4 Inspection and Maintenance of SCBA.
15. Identify and use of small and special gears.	15.1 Identify, select and operate different small and special gears.
	15.2 Drill with different small and special gears.
16. Plan and execute elementary treatment at any incidental spot.	16.1 Donning, running and Rescue of casualty through tunnel.
	16.2 Apply Sylvester's Method, Holgar Nielsen Method, Rocking Stretcher Method, Emerson Method
	16.3 Perform Mouth to Mouth Respiration.
17. Utilization of knots and hitches in different special job and fire.	17.1 Practical use of different knots and hitches in rescue & fire fighting
	17.2 Testing of different type of lines.
	17.3 Care and maintenance.
18. Plan and execute to up lift various gears with proper techniques. Introduction to Hazard and Risk evaluation & the proper method of rescue & F.F.	18.1 Causes, Identification, Evaluation & Control of hazard and risk.
	18.2 Hauling up gears and combined drill

19. Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management.	19.1 Identify different industrial accidents.
	19.2 Prepare accident reports.
	19.3 Identify Methods Adopted for Reducing Accidents.
	19.4 Investigation and analysis of Accidents.
	19.5 Safety Slogans, Safety Precautions adopted in the Plant.
	19.6 Apply Safety Management, Safety Policy, Safety Committee, , Responsibility of Management, Safety Officers Duties & Responsibilities, Safety Targets, Objectives, Standards, Practices and Performances in work place.
20. Select & apply provisions related to safety, health and welfare in respect of Factory Act, 1948.	20.1 Select & apply provisions related to safety.
	20.2 Observation of provisions of the legislation applicable to different factories.
21. Assessment of available resources and their proper use.	21.1 Identify and select various types of Fire Fighting Small and Special rescue gear at Fire Service Station.
	21.2 Practical Use of equipments like cutting tools
	21.3 Lifting tools Maintenance of tools.
22. Interpret appropriate techniques of CPR.	22.1 Identify techniques of CPR.
	22.2 Apply appropriate techniques of CPR.
	22.3 Identify and apply Methods for rescue without equipment
23. Identify the importance of lighting, ventilation, work related stress and its measurement.	23.1 Measurement of illumination by Photo meter.
	23.2 Measurement of number of air changes in a room
	23.3 Measurement of vibration of machine and equipments.
SEMESTER-II	
24. Plan and execute fixed fire fighting installations for their effective utilization.	24.1 Identify Sprinkler System and their care and maintenance and operational Procedure
	24.2 Plan and execute fixed fire fighting installation.
	24.3 Utilize fixed fire fighting
	24.4 Identify Elementary requirements of Drenchers, Rising Mains, Hose Reels And Down-comer, Fire pump control panel.
	24.5 Install Fixed Foam.

25. Select and use PPE, its care and maintenance.	25.1 Identify various Personal Protective Equipments.
	25.2 Select and use Respiratory and Non-respiratory Personal Protective Equipment, their Care & Maintenance.
	25.3 Observe standard and regulation related to PPE.
26. Select Automatic Fire Detection cum Alarm System to plan their effective utilization.	26.1 Identify various types of detectors.
	26.2 Select Automatic Fire Detection cum Alarm System as per need.
	26.3 Plan Automatic Fire Detection cum Alarm Systems effective utilization.
27. Plan and execute fire station administration.	27.1 Identify various important duties of a fire station.
	27.2 Drill with ladder and water tender
	27.3 Foam Drill with FBI0X single delivery.
	27.4 Foam Drill with FB5X single delivery.
	27.5 Wet Drill with double delivery.
	27.6 Dry Drill with double delivery.
28. Identify communication system in different organization and their scope of use.	28.1 Identify different communication required at various fire service departments.
	28.2 Identify, select and apply Various lines, communication Equipment in Fire Service.
	28.3 Select & use Method of receiving report of emergencies.
	28.4 Identify and use Radio Communication and VHF.
	28.5 Practices Writing of Occurrence Book, Duty Card/ Register, Log Book, Hose Book, Stock Register and their maintenance.
	28.6 Apply fire affected room searching techniques.
29. Accustomed with different fire situations and fire fighting using extinguishers.	29.1 Perform live fire extinction using all kind of extinguisher.
	29.2 Identify Fire Hazards in rural areas and cause of fire.
	29.3 Identify, select and apply Method of Fire-fighting in rural areas.
	29.4 Identify Difficulties in dealing with Rural fires.
30. Plan and execute disaster response practices, IRS/JRT and salvage technique.	30.1 Identify Natural and Man-made Disaster.
	30.2 Use various agencies, first responders, control of situation.
	30.3 Identify different types of disasters.
	30.4 Simulated Practices to control life and properties damages from natural disaster.
	30.5 Perform Water relay drill (All types).

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

	30.6	Identify and select Equipment for Salvage & working at Fires
	30.7	Use salvage sheets & equipments and there care & maintenance.
	30.8	Identify, select and apply Methods of entry into building.
	30.9	Identify, select and apply Different searching methods to locate & rescue a trapped causality.
31. Select and apply correct rescue method.	31.1	Observe safety Precautions when working in smoke laden buildings.
	31.2	Identify, select and apply various Emergency methods of rescue.
	31.3	Identify hazards associated with various rescue operations.
	31.4	Select & apply various rescue equipments.
32. Categorize building construction that can ensure fire and life safety.	32.1	Familiarization at construction site.
	32.2	Identify building materials.
	32.3	Plan escapes routine.
	32.4	Practical training about Care and maintenance of sprinklers.
	32.5	Use of Automatic fire alarm system, fire exit drill
33. Plan and execute fire protection measures based on construction and occupancy.	33.1	Classification of building in the country
	33.2	Identify Building materials and their behavior under fire conditions
	33.3	Identify and apply various types of occupancies and fire fighting techniques.
	33.4	Identify Important fire escapes with respect to there positioning.
34. Plan and survey Airport & Aircraft, port and ship for rescue system and fire fighting system on it.	34.1	Identify Different types of Air-crafts, Air craft fire fighting and rescue procedures.
	34.2	Identify types of emergencies and apply method of dealing with each emergency.
	34.3	Recognize ship fire protection and fire fighting & rescue from ship.
35. Identify occupational hazards associated with different dangerous chemicals, dust, gases, mist, vapours etc. to	35.1	Identify HVAC system.
	35.2	Identify various equipments used in rescue of causality.
	35.3	Ladder Drill with Fireman Lift.
	35.4	Sewer Rescue drill.

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

plan and execute rescue operations in these cases.	35.5 Stretcher drill.
	35.6 Identify Occupational Hazards & Dangerous Chemicals.
	35.7 Identify Dangerous Properties of Chemicals, Dust, Gases, Fumes, Mist, Vapours, Smoke and Aerosols.
36. Observed safety precautions while working at height, confined place and work permit system.	36.1 Perform High elevation drill.
	36.2 Perform Confined space rescue.
	36.3 Observe safety precaution related to Scaffolds, Ladders, and Work at height including Roof Work.
37. Identify the characteristics of various fire suppression agents including water. Understand safety in manual and mechanical handling of materials.	37.1 Identify the characteristics of various fire suppression agents including water.
	37.2 Perform Mechanical and Manual Material Handling.
	37.3 Observe Safety related to Mechanical and Manual Material Handling, Lifting Appliances, Transport / Earthmoving & Material Handling Equipments.
38. Analysis hazard evaluation and risk analysis exercise.	38.1 Perform exercise on Hazard evaluation and risk.
	38.2 Use safety belt, helmets, gloves and goggles.
	38.3 Identify Transportation and handling of dangerous chemicals and explosives.

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	<p>Familiar, Predictable, Routine Situations of Clear Choice</p> <ul style="list-style-type: none"> • Select suitable chemicals (industrial, inflammable liquid) usable on the workplace. • Methods of using ladder in practical field. • Select the BA set and its application in appropriate place. • Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management. • Select & apply provisions related to safety, health and welfare in respect of Factory Act, 1948. • Select and use PPE, its care and maintenance. • Select Automatic Fire Detection cum Alarm System to plan their effective utilization. 	<p>In all the learning outcomes for example ‘Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management.’ and ‘Select Automatic Fire Detection cum Alarm System to plan their effective utilization.’, 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.</p> <p>Thus the learner requires to demonstrate ability to work in familiar, predictable, routine, situation of clear choice.</p> <p>And the NSQF level as per this descriptor will be 4.</p>	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> • Select and apply correct rescue method. • Categorize building construction that can ensure fire and life safety. • Identify the characteristics of various fire suppression agents including water. Understand safety in manual and mechanical handling of materials. • Analysis hazard evaluation and risk analysis exercise. 		
Professional knowledge	<p>Knowledge of facts in a field of work or study</p> <ul style="list-style-type: none"> • Introduction, Importance of Discipline, General Principles of discipline, essentials for discipline and outward Signs. • Basic Physics and Chemistry related to Fire • Classification of Fire & Extinguishers • Foam & Foam Making Equipment • Hydrant & Fittings • Source of water supply, Water distribution system, Rural water supply, Determining Static, Residual and Flow Pressure • Pump & Pump Operation • Pressure and Head, pressure and Flow, mensuration, Nozzle's discharge, 	<p>The learner will need to be well versed with Factual knowledge of field of Fire types and industrial safety for example 'Classification of Fire & Extinguishers', 'Source of water supply, Water distribution system, Rural water supply, Determining Static, Residual and Flow Pressure' and 'Fundamentals of electricity, Generation and Distribution, Common causes of electrical fire and its remedial measures, electrical hazards including static electricity and protective measures and fire-fighting procedure, Elementary knowledge of Fire Protection and fire-fighting in different premises, electrocution.'</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>calculation of water capacity of tank, requirement for specific fire size.</p> <ul style="list-style-type: none"> • Fundamentals of electricity, Generation and Distribution, Common causes of electrical fire and its remedial measures, electrical hazards including static electricity and protective measures and fire-fighting procedure, Elementary knowledge of Fire Protection and fire-fighting in different premises, electrocution. • Introduction, Types of Ladders, Construction features of conventional (terminology and parts) Ladders, Operational use, Elementary Knowledge of T.T.L. & Snorkel visit at regular fire service having these appliances. • Water Tender and Special Appliance • First Aid • Safety, Health and environment legislation. • General Safety Provisions related to construction industry, Safety in the use of Construction Machinery, Safe Access / Egress Importance of Good House Keeping. • Lighting, Ventilation & Work related stress • Fixed Fire Fighting Installations: Introduction of Sprinkler System and their 		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>care and maintenance and operational Procedure</p> <ul style="list-style-type: none"> • Automatic Fire Detection cum Alarm System • Fire Service Administration • Watch Room Procedure & Mobilizing • Practical Fireman ship: Qualities of Fireman and his important duties at a Fire Station and Fire ground. • Fire Hazards in rural areas and cause of fire, Hay stacks, Special appliance & equipment, Method of Fire-fighting in rural areas. • Various Rescue techniques: Rescue technique from lift, Sewer, Collapsed building, motor vehicle accident, Well & river, Special equipment and training requirements for rescue operations. • Classification of escape routes with reference to N.B.C. Fire exit drill. • Safety in Engineering Industries • Aircraft Fire and Rescue • Safety related to Mechanical and Manual Material Handling, Lifting Appliances, Transport / Earthmoving& Material Handling Equipments • House Keeping and Waste Disposal: 		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	Introduction of Good House Keeping & Maintenance, Introduction of Disposal of Waste Material.		
Professional skill	<ul style="list-style-type: none"> Identify, select & execute the application of different types of extinguisher, hose & hose fittings. Select and prepare the hydrant and pump system for proper application. Plan and execute the concept of hydraulics in work place. Select and categorize electrical hazard and risk & its mitigation. Select the BA set and its application in appropriate place. Plan and execute elementary treatment at any incidental spot. Plan and execute to up lift various gears with proper techniques. Introduction to Hazard and Risk evaluation & the proper method of rescue & F.F. Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management. 	<p>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.</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>	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> • Select & apply provisions related to safety, health and welfare in respect of Factory Act, 1948. • Assessment of available resources and their proper use. • Interpret appropriate techniques of CPR. • Identify the importance of lighting, ventilation, work related stress and its measurement. • Plan and execute fixed fire fighting installations for their effective utilization. • Select Automatic Fire Detection cum Alarm System to plan their effective utilization. • Plan and execute fire station administration. • Identify communication system in different organization and their scope of use. • Accustomed with different fire situations and fire fighting using extinguishers. • Plan and execute disaster response practices, IRS/JRT and salvage technique. • Select and apply correct rescue method. • Categorize building construction that can ensure fire and life safety. 		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management			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"> Plan and execute fire protection measures based on construction and occupancy. Plan and survey Airport & Aircraft, port and ship for rescue system and fire fighting system on it. Identify occupational hazards associated with different dangerous chemicals, dust, gases, mist, vapours etc. to plan and execute rescue operations in these cases. Analysis hazard evaluation and risk analysis exercise. 		
Core skill	<p>Language to communicate written or oral, with required clarity</p> <ul style="list-style-type: none"> 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. 	<p>The work of Fire Technology and Industrial Safety Management involves Service, Repair & Installation of PV Panels 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.</p> <p>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.</p>	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> Resolve disputes within the team Conduct written communication. <p>Desired Mathematical Skills</p> <ul style="list-style-type: none"> 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. <p>Basic understanding of social political and natural environment</p> <ul style="list-style-type: none"> 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. 	<p>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'</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> 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	<ul style="list-style-type: none"> Select suitable chemicals (industrial, inflammable liquid) usable on the workplace. Identify, select & execute the application of different types of extinguisher, hose & hose fittings. Select and prepare the hydrant and pump system for proper application. Plan and execute the concept of hydraulics in work place. Select and categorize electrical hazard and risk & its mitigation. Methods of using ladder in practical field. 	<p>The Fire Technology and Industrial Safety Management technician has to perform all the learning outcomes independently and as per requirements of the job, hence is responsible for own work and learning.</p> <p>Hence NSQF Level is 4 for this descriptor.</p>	4

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> • Select the BA set and its application in appropriate place. • Identify and use of small and special gears. • Plan and execute elementary treatment at any incidental spot. • Utilization of knots and hitches in different special job and fire. • Plan and execute to up lift various gears with proper techniques. Introduction to Hazard and Risk evaluation & the proper method of rescue & F.F. • Analyze the concept of accident caused and prevention, accident investigation, analysis and safety management. • Select & apply provisions related to safety, health and welfare in respect of Factory Act, 1948. • Assessment of available resources and their proper use. • Interpret appropriate techniques of CPR. • Identify the importance of lighting, ventilation, work related stress and its measurement. 		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		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"> • Plan and execute fixed fire fighting installations for their effective utilization. • Select and use PPE, its care and maintenance. • Select Automatic Fire Detection cum Alarm System to plan their effective utilization. • Plan and execute fire station administration. • Identify communication system in different organization and their scope of use. • Accustomed with different fire situations and fire fighting using extinguishers. • Plan and execute disaster response practices, IRS/JRT and salvage technique. • Select and apply correct rescue method. • Categorize building construction that can ensure fire and life safety. • Plan and execute fire protection measures based on construction and occupancy. • Plan and survey Airport & Aircraft, port and ship for rescue system and fire fighting system on it. • Identify occupational hazards associated with different dangerous chemicals, dust, gases, 		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

Title/Name of qualification/component: Fire Technology and Industrial Safety Management		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
	<p>mist, vapours etc. to plan and execute rescue operations in these cases.</p> <ul style="list-style-type: none">• Observed safety precautions while working at height, confined place and work permit system.• Identify the characteristics of various fire suppression agents including water. Understand safety in manual and mechanical handling of materials.• Analysis hazard evaluation and risk analysis exercise.		

NSQF QUALIFICATION FILE

Fire Technology and Industrial Safety Management

OPTION B

Title/Name of qualification/component: Fire Technology and Industrial Management			Level: 4
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	<p>What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?</p> <table border="1" data-bbox="339 472 1209 1379"> <thead> <tr> <th data-bbox="339 472 627 613">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="339 613 627 779">Need of the qualification</td> <td data-bbox="627 613 1209 779">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="339 779 627 1099">Industry Relevance</td> <td data-bbox="627 779 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="339 1099 627 1265">Usage of the qualification</td> <td data-bbox="627 1099 1209 1265">The Proposed qualification is running in ITI system across the country successfully over the period of time.</td> </tr> <tr> <td data-bbox="339 1265 627 1379">Estimated uptake</td> <td data-bbox="627 1265 1209 1379">This is a New Trade. The present seating capacity is approximately 962.</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 962.
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 962.										
27	<p>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences.</p> <p>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.</p>										
28	<p>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</p> <p>The qualification is originally designed and approved by 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.</p>										

29	<p>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here</p> <ul style="list-style-type: none"> • Mentor Council (MC) for the Safety and Security 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.
-----------	---

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	<p>What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?</p> <p><i>Show the career map here to reflect the clear progression</i></p> <ul style="list-style-type: none"> • Qualifying trainee will obtain an NCVT Certificate in Fire Technology and Industrial Safety Management trade which gives the following options of progression to the trainee: <ol style="list-style-type: none"> i) National Apprenticeship Certificate will be designed in due course of time as this a new trade. ii) Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs. iii) Entrepreneur.
-----------	--

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.