

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
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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
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New Delhi – 110012.

Name and contact details of individual dealing with the submission

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List of documents submitted in support of the Qualifications File

1. Competency-based curriculum (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	' Mechanic Lens/ Prism Grinding '
2	Qualification Code, if any	DGT/1113
3	NCO code and occupation	7315.2000 - Glass Cutter, Other 7316.1100 - Mirror Silverer 7315.1200 - Lens Grinder 7315.1400 - Lens Polisher (Optical)
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	Mechanic Lens/ Prism Grinding 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"> • Glass Cutter, Other • Mirror Silverer • Lens Grinder • Lens Polisher (Optical)
9	Job description of the occupation	The individual makes different types of mirror such as glass mirror, furniture mirror, concave mirror, convex mirror etc. ; cleans, polishes & paints glasses, within required accuracy. He/she prepares curve generation, performs grinding, smoothing, hand polishing, centering & edging, cementing of lenses etc. The person is responsible for fusion of lenses, anti reflection coatings to manufacture spectacles lenses, prism and other flat surfaces etc; surface finish of optical

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		components and for Inspection of various parameters of lens in use of optical instruments and devices such as Telescope, Microscope, Binoculars, Periscope etc.																														
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 border="1"> <thead> <tr> <th>Sl. No.</th> <th>Course Element</th> <th>Notional Training Hours</th> </tr> </thead> <tbody> <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> </tbody> </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 qualification	As per Annexure enclosed in the curriculum																														
15	Entry requirements and/or recommendations and minimum age	Passed 10th class examination under 10+2 System of education with Science and Mathematics or its equivalent.																														
16	Progression from the qualification (Please show Professional and academic progression)																															
17	Arrangements for the	1. At present the students who have passed																														

	Recognition of Prior learning (RPL)	<p>10th class with minimum 3 years' experience in relevant field can appear for NCVT theory and practical semester examination directly.</p> <p>2. The students who have passed SCVT examination in 'Mechanic Lens/ Prism Grinding' trade can also appear for the NCVT Examination in the relevant semester and Trade directly.</p>	
18	International comparability where known (research evidence to be provided)	<p>1. Existence of any official document suggesting the comparability of the qualification with the qualifications in other countries is not known.</p> <p>2. However, ITI passed out trainees are getting employment in many Gulf countries, European countries, Australia, New Zealand, Singapore etc.</p>	
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
(i)	Recognize & comply safe working practices, environment regulation and housekeeping.	80	4
(ii)	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, Hack-sawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: ± 0.25mm]</i>	240	4
(iii)	Produce glass mirrors from sheet glass. [Different processes- cleaning, marking, drilling, forming, grinding, sensitizing, polishing etc.]	320	4
(iv)	Perform different surface preparation- such as Silvering, Coppering, Painting of Glass mirrors Inspection and testing of Glasses and Glass mirrors.	120	4
(v)	Prepare furniture mirror, concave and convex mirror, dentist mirror,	80	4

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	periscope etc.		
Semester – II			
(vi)	Recognize & comply safe working practices, environment regulation and housekeeping.	40	4
(vii)	Identify and demonstrate materials, parameters of different Lenses.	80	4
(viii)	Make Lenses and Prisms. [Different operations-Curve generation, Grinding, Smoothing, Polishing & Hand Polishing, Centering & Edging, Inspection of various parameters, Cementing of lenses, Fusion Lenses , Anti reflection coatings ,]	160	4
(ix)	Make spectacles lenses and carry out inspection & quality Control.	200	4
(x)	Make Prism & other flat surfaces. [Process-Removal from block, Cleaning, Measurement of parameters, Anti-reflection coating, Cementing (if applicable)]	80	4
(xi)	Surface finish on optical components by – continued Anti-reflection coatings on optics, Cementing of optical components, Silvering of Lenses and Prisms [Processes- Manufacture of front surface & back surface mirrors, Chemical silvering on optics, Vacuum deposition of different materials on optics]	120	4
(xii)	Work with different optical instruments and devices [Telescope, Microscope, Binoculars, Periscope, Range Finder, Theodolites, Night Vision devices, Lensometer,, Auto Refractometer,, Slit refraction unit, Phoropter, Retinoscope.]	80	4
(xiii)	Make various spectacles, prism & magnifying glasses.	80	4
(xiv)	Revision, Project work and Examination	400	
	Sub Total (A)	2080	4
	Optional components	N/A (All components are compulsory)	

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	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>
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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? <ol style="list-style-type: none"> At present the students who have passed 10th class with minimum 3 years' experience can appear for NCVT theory and practical semester examination directly. The students who have passed SCVT examination in 'Mechanic Lens/ Prism Grinding' 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, 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:</p> <table border="1" data-bbox="320 1693 1402 1968"> <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>300</td> </tr> <tr> <td>b)</td> <td>Trade Theory</td> <td>200</td> </tr> </tbody> </table>	Marking Pattern			Sl. No.	Subject for the trade test	Maximum marks for the each subject	a)	Practical	300	b)	Trade Theory	200
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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)
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.

	<ul style="list-style-type: none"> • 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. <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-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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ASSESSMENT EVIDENCE

24. Assessment evidences

Title of Component: Mechanic Lens/ Prism Grinding

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 60% marks for each Trade practical Examination. For the purposes of determining the overall result, 50% weightage is applied to the result of each semester examination.

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.

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<p>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, graph, Statistics, Centre of gravity, Power transmission, Pressure]</i></p>	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, centre of gravity, friction.
	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.
<p>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, Sectional views, Estimation of material, Electrical & electronic symbol]</i></p>	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.
<p>4. Select and ascertain measuring instrument and measure dimension of components and record data.</p>	4.1 Select appropriate measuring instruments such as micrometers, vernier calipers, 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.
<p>5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to</p>	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

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improve productivity & quality.	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	6.1 Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain sensitive to avoid environment pollution.
available resources.	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 OUTCOMES	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	9.1 Plan & Identify tools, instruments and equipments for marking and make this available for use in a timely manner.
	9.2 Select raw material and visual inspect for defects.
	9.3 Mark as per specification applying desired mathematical

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<p>for dimensional accuracy. <i>[Basic fitting operation – marking, Hacksawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$]</i></p>	<p>calculation and observing standard procedure.</p>
	<p>9.4 Measure all dimensions in accordance with standard specifications and tolerances.</p>
	<p>9.5 Identify Hand Tools for different fitting operations and make these available for use in a timely manner.</p>
	<p>9.6 Prepare the job for Hacksawing, chiselling, filing, drilling, tapping, grinding.</p>
	<p>9.7 Perform basic fitting operations viz., Hacksawing, filing, drilling, tapping and grinding to close tolerance as per specification to make the job.</p>
	<p>9.8 Observe safety procedure during above operation as per standard norms and company guidelines.</p>
	<p>9.9 Check for dimensional accuracy as per standard procedure.</p>
	<p>9.10 Avoid waste, ascertain unused materials and components for disposal, store these in an environmentally appropriate manner and prepare for disposal.</p>
<p>10. Produce glass mirrors from sheet glass. [Different processes- cleaning, marking, drilling, forming, grinding, sensitizing, polishing.etc.]</p>	<p>10.1 Identification & Demonstration of materials of different Glasses such as soda lime glass, potash lime glass, potash led glass and common glass</p>
	<p>10.2 Cleaning, Marking and cutting of glasses to different shapes such as square, rectangle, on 3 mm and 5.5 mm thick glasses</p>
	<p>10.3 Drilling on plain glasses 3mm, 5 mm and 10 mm thick</p>
	<p>10.4 Forming of glass for making concave mirror</p>
	<p>10.5 Forming of glass for making convex mirror</p>
	<p>10.6 Grinding of glasses to different profiles</p>
	<p>10.7 Sensitizing of glasses</p>
	<p>10.8 Polishing of glasses</p>
<p>11. Perform different surface preparation- such as Silvering, Coppering, Painting of Glass mirrors Inspection and testing of Glasses and Glass mirrors.</p>	<p>11.1 Surface preparation and Silvering of Glass mirrors</p>
	<p>11.2 Coppering of Glass mirrors</p>
	<p>11.3 Painting on glasses</p>
	<p>11.4 Inspection and testing of Glasses and Glass mirrors</p>
<p>12. Prepare furniture mirror, concave and convex mirror,</p>	<p>12.1 Manufacturing of furniture mirror</p>
	<p>12.2 Manufacturing of concave and convex mirror</p>

dentist mirror, periscope etc.	12.3	Manufacturing of dentist mirror
	12.4	Manufacturing of periscope
	12.5	Manufacturing of periscope
Semester-II		
13. Identify and demonstrate materials, parameters of different Lenses.	13.1	Determination of Radius of curvature & Focal length of different lenses
	13.2	determination of power by different methods
14. Make Lenses and Prisms.[Different operations-Curve generation, Grinding, Smoothing, Polishing & Hand Polishing, Centering& Edging, Inspection of various parameters, Cementing of lenses, Fusion Lenses , Anti reflection coatings ,]	14.1	Practice on use of spherical block .
	14.2	Lens setting on spherical block.
	14.3	Heating pitch, placing on block with power glass (Bio-Focal), setting axis.
	14.4	Lens setting on cylindrical block Working process: (Trepanning)
	14.5	Shaping, Rubbing, finishing, and Polishing by Cerium oxide and White oxide.
	14.6	Setting Cylindrical die (Tool) Operate cylindrical m/c. /spherical m/c.
	14.7	Perform different operation viz., Curve generation., Grinding ,Smoothing, Polishing& Hand Polishing
	14.8	Practice on Centering &Edging, Inspection of various parameters, Cementing of lenses, Fusion of Lenses, Anti reflection coatings.
15. Make spectacles lenses and carry out inspection & quality Control	15.1	Perform and Select of glass moulds, Polishing & Profiling to suit in frame, Measurement of power and axis.
	15.2	manufacturing of Bi-focal lenses and perform Transmission measurement.
	15.3	Lens fitting on frame by grinding, edging and sizing according to the required frame. Mounting of lens in frame
	15.4	Use of test plates /proof plates and Measurement of curvature & use of instruments (optical spherometer).
	15.5	Measurement of Focal Length for +Ve& -Ve Lenses & Mirrors
	15.6	Practice on optical measuring devices such as 'Angle Dekkor', Lensometer, Refractometer, Spherometer, Interferometer, Strain

	viewer etc.
16. Make Prism & other flat surfaces. [Different Process-Removal from block, Cleaning, Measurement of parameters, Anti-reflection coating, Cementing .	16.1 Practice on different operations For manufacturing of prisms and other flat surfaces
	16.2 Remove from block then Cleaning, Measurement of parameters, Anti-reflection coating, Cementing (if applicable)
17. Surface finish on optical components by – continued Anti-reflection coatings on optics, Cementing of optical components, Silvering of Lenses and Prisms [Processes- Manufacture of front surface & back surface mirrors, Chemical silvering on optics, Vacuum deposition of different materials on optics]	17.1 Manufacture of front surface back surface mirrors. Perform Chemical silvering on optics, Vacuum deposition of different materials on optics.
	17.2 Perform Anti-reflection coatings on optics cementing of optical components.
	17.3 Silvering of Lenses and Prisms.
18. Work with different optical instruments and devices [Telescope, Microscope, Binoculars, Periscope, Range Finder, Theodolites, Night Vision devices, Lensometer,, Auto Refractometer,, Slit refraction unit, Phorofter, Retinoscope.]	18.1 Demonstrate & practice on application of different optical instruments and devices such as Telescope ,Microscope, Binoculars, Periscope, Range Finder, Theodolites, Night Vision devices
	18.2 Practice Refraction equipment and its basic functions of Lensometer, Auto Refractometer, Slit lamp, Lens tray, Lens frame optical refraction unit, Phorofter Retinoscope. Idea about optical aberrations
19. Make various spectacles, prism & magnifying glasses.	19.1 Manufacture of spectacles, prism & magnifying glasses

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SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Mechanic Lens/ Prism Grinding			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Process	<ul style="list-style-type: none"> Perform different surface preparation- such as Silvering, Coppering, Painting of Glass mirrors Inspection and testing of Glasses and Glass mirrors. Identify and demonstrate materials, parameters of different Lenses. Make Prism & other flat surfaces. [Process- Removal from block, Cleaning, Measurement of parameters, Anti-reflection coating, Cementing (if applicable)] 	<p>The learner is expected to identify materials, parameters like focal length, radius of curvature of different lenses. He/she is required to manufacture and prepare prisms, spectacles lenses, magnifying glasses and other flat surfaces by various processes like drilling, grinding, forming, marking etc.</p> <p>The above tasks are performed by the learner in familiar environment, & the nature of work is routine, predictable & situation of clear choice.</p> <p>Hence the NSQF level as per this descriptor will be 4.</p>	4
Professional knowledge	<p>Factual Knowledge of field of Knowledge or study</p> <ul style="list-style-type: none"> Description of hand tools, uses, care maintenance. 	<p>The learner is expected to possess the knowledge about hacksaw & grinding wheels, diamond cutter , hacksaw frame, blade types & their application. He/she is expected to know about different types of mirrors, glasses, commercial forms of glasses & glass material;</p>	4

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Title/Name of qualification/component: Mechanic Lens/ Prism Grinding		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"> Description of Hacksaw & Grinding Wheels, Diamond cutter and Trepanning Tools. Types and major classification of glass such as soda lime glass, potash lime glass, potash led glass, common glass Processes of manufacturing of furniture mirror and dentist mirror. 	<p>detect defects in glass material , know about different glass moulding processes etc.</p> <p>The above knowledge possessed by the learner are the factual knowledge required in this field of trade.</p> <p>Hence NSQF Level 4 is justified for this Descriptor.</p>	
Professional skill	<ul style="list-style-type: none"> Produce glass mirrors from sheet glass.[Different processes- cleaning, marking, drilling, forming, grinding, sensitizing, polishing etc.] Prepare furniture mirror, concave and convex mirror, dentist mirror, periscope etc. Make Lenses and Prisms. [Different operations-Curve generation, Grinding, Smoothing, Polishing & Hand Polishing, Centering & Edging, Inspection of various parameters, Cementing of lenses, Fusion Lenses , Anti reflection coatings ,] 	<p>The learner is expected to identify materials of different glasses; form them to different shapes. He/she is expected to prepare furniture mirror, dentist mirror , magnifying glass & spectacles with different lenses etc.</p> <p>The learner is expected to have the understanding of lens setting on spherical block, awareness of working process (Trepanning) of lens setting on cylindrical block; perform different operations like curve generation, grinding, smoothing, polishing, shaping etc.</p> <p>The learner is required to recall & demonstrate practical skills which are routine & repetitive in</p>	4

NSQF QUALIFICATION FILE

Mechanic Lens/ Prism Grinding

Title/Name of qualification/component: Mechanic Lens/ Prism Grinding			Level: 4
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
		<p>narrow range of application using appropriate rules & tool using quality concepts to perform above tasks.</p> <p>Hence NSQF Level 4 is justified for this descriptor.</p>	
Core skill	<p>Language to communicate written or oral, with required clarity</p> <ul style="list-style-type: none"> Use documents and technical regulations and occupationally related provisions. <p>Basic Mathematical Skills</p> <ul style="list-style-type: none"> Demonstrate basic mathematical concept and principles to perform practical operations. <p>Basic understanding of social political and natural environment</p> <ul style="list-style-type: none"> Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources. 	<p>The learner is required to read and write in simple English language and hence is able to communicate with supervisor to explain ones work with required clarity. The learner is able to perform basic arithmetic, algebraic & trigonometric calculations; also can operate on computer as he possesses the basic knowledge of computer & its applications. He/she is able to read images, graphs, diagrams, various charts.</p> <p>He/she is able to perform the job complying environment regulation and housekeeping by applying safe working practices. Maintains energy conservation, prevents global warming & pollution by optimally using available resources in day to day work.</p> <p>Hence NSQF Level is 4 for this descriptor</p>	4

NSQF QUALIFICATION FILE

Mechanic Lens/ Prism Grinding

Title/Name of qualification/component: Mechanic Lens/ Prism Grinding		Level: 4	
NSQF Domain	Outcomes of the Qualification/Component	How the outcomes relates to the NSQF level descriptors	NSQF Level
Responsibility	<ul style="list-style-type: none"> 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, Hack-sawing, Chiseling, Filing, Drilling, Taping and Grinding etc. Accuracy: $\pm 0.25\text{mm}$] Work with different optical instruments and devices [Telescope, Microscope, Binoculars, Periscope, Range Finder, Theodolites, Night Vision devices, Lensometer,, Auto 	<p>The learner is expected to know the appropriate remedial action required for specific defect and thus is responsible for own work & learning. He/she is able to plan and organize assigned work to him/her and detect & resolve issues during execution. Also demonstrates possible solutions and agree tasks within the team. The learner is able to recognize & comply safe working practices for efficient productivity.</p> <p>Hence NSQF Level is 4 for this descriptor</p>	4

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 1402 1373"> <thead> <tr> <th data-bbox="339 472 687 613">Basis</th> <th data-bbox="687 472 1402 613">In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</th> </tr> </thead> <tbody> <tr> <td data-bbox="339 613 687 775">Need of the qualification</td> <td data-bbox="687 613 1402 775">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="339 775 687 1093">Industry Relevance</td> <td data-bbox="687 775 1402 1093">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 1093 687 1252">Usage of the qualification</td> <td data-bbox="687 1093 1402 1252">The Proposed qualification is running in ITI system across the country successfully over the period of time.</td> </tr> <tr> <td data-bbox="339 1252 687 1373">Estimated uptake</td> <td data-bbox="687 1252 1402 1373">Yet to take affiliation by institutes</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	Yet to take affiliation by institutes
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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</p>										

	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	<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 Production & Manufacturing 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.

SECTION 4
EVIDENCE OF PROGRESSION

30

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?
Show the career map here to reflect the clear progression

