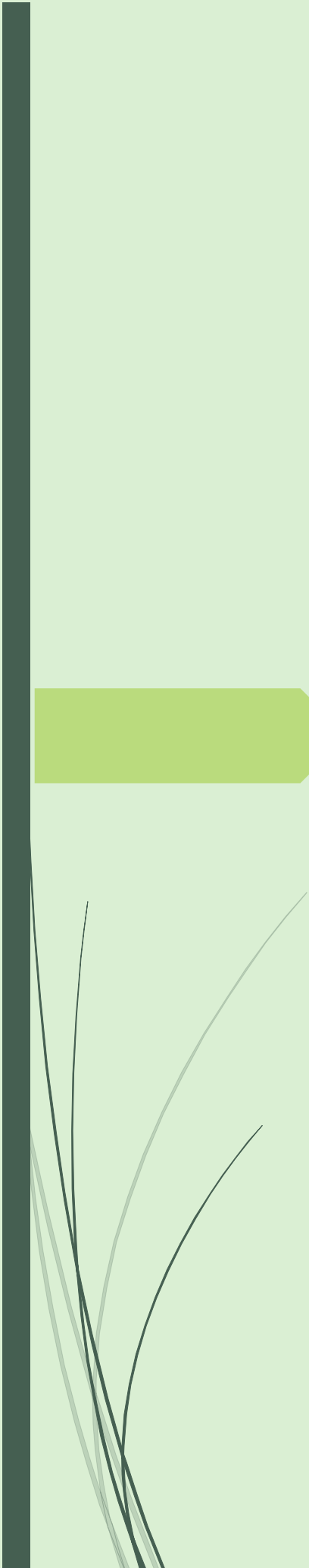


ELECTRONICS EQUIPMENT TECHNICIAN



QUALIFICATION FILE



**Ministry of Micro, Small and Medium
Enterprises, New Delhi
(MSME-Technology Centre)**

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

O/o DC (MSME),
Ministry of Micro, Small and Medium Enterprises
Nirman Bhawan,
Maulana Azad Road,
New Delhi - 110108

Name and contact details of individual dealing with the submission

Name : Mr. Briksha Ram
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List of documents submitted in support of the Qualifications File

1. Curriculum Document

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SUMMARY

Qualification Title	Electronics Equipment Technician
Qualification Code	MSME/EEM/55
Nature and purpose of the qualification	Nature: Certificate course Purpose: This qualification trains the trainees to carry out electronic gadgets repair jobs. The trained candidates are qualified to work as Electronic Equipment Mechanic, Television Installation Man, Cable Television Installer, Television Service & Repairman and Communication Devices Repairman. The trainees can also start their own repair workshop and earn livelihood.
Body/bodies which will award the qualification	MSME-Technology Centre, Ministry of Micro, Small & Medium Enterprises, New Delhi
Body which will accredit providers to offer courses leading to the qualification	MSME-Technology Centre, Ministry of Micro, Small & Medium Enterprises, New Delhi
Body/bodies which will carry out assessment of learners	Examination Cell of MSME Technology Centre
Occupation(s) to which the qualification gives access	Electronic Equipment Mechanic, Television Installation Man, Cable Television Installer, Television Service & Repairman, and Communication Devices Repairman, Entrepreneur
Licensing requirements	Nil
Level of the qualification in the NSQF	4
Anticipated volume of training/learning required to complete the qualification	1560 hours
Entry requirements and/or recommendations	10th passed
Progression from the qualification	As the qualification is carrier oriented the qualifying trainee will be eligible to be: 1. Absorbed by the industry as Electronic Equipment Mechanic, Television Installation Man, Cable Television Installer, Television Service & Repairman and Communication Devices Repairman. After completion of 1 year they will be eligible to work as Senior Electronic Equipment Mechanic. After completion of 2-3 years they will be eligible to work as Electronic Equipment Mechanic Supervisor.
Planned arrangements for the Recognition of Prior learning (RPL)	Yes. Mentioned in detail in Section 1.
International comparability where known	Not known

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Date of planned review of the qualification.	May 2018		
Formal structure of the qualification			
Title of the component and identification code	Mandatory/ Optional	Estimated size (learning hours)	Level
Basic Electrical	Mandatory	146	4
Electronic Devices & Circuits	Mandatory	317	4
Digital Electronics	Mandatory	146	4
Industrial Instrumentation	Mandatory	317	4
Communication System	Mandatory	317	4
Repair, Maintenance Skills & Production Techniques	Mandatory	317	4

Please refer curriculum document for details.

SECTION 1 ASSESSMENT

Body/Bodies which will carry out assessment:

Examination Cell of MSME Technology Centre

How will RPL assessment be managed and who will carry it out?

Learners who claim to have prior experience will be assessed and if found to have knowledge and skills meeting the outcomes of any or more components will be recognized and dealt accordingly. However there can be prior learning of varying levels and each person cannot be grouped in the same category. So a full assessment will be carried out to find out the level of the claimant.

The assessment will be carried out by examination cell of MSME-Technology Centre, Ministry of Micro, Small & Medium Enterprises, New Delhi.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

1. ASSESSMENT GUIDELINE:

- Criteria for assessment based on each learning outcomes, will be assigned marks proportional to its importance.
 - The assessment for the theory & practical part is based on knowledge bank of questions created by Examination cell of MSME Technology Centre

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- For each individual batch, Examination cell will create unique question papers for theory part as well as practical.

- Assessment comprises the following components:

>Job carried out in labs/workshop

>Record book/daily diary

>Answer sheet of assessment

>Viva-voce

- Apart from above assessment we also observe the trainee on the following components:

>Assignments

>Attendance and punctuality

2. ASSESSORS:

MSME-Technology Centre, Ministry of Micro, Small & Medium Enterprises, New Delhi assesses the students as per guidelines set by Examination cell of MSME Technology Centre. Faculties are been trained from time to time to upgrade their skills on various aspects such as teaching methodology, conduction of assessments etc. These training are usually conducted at various places prominent among them are NITTTR, Chandigarh and other tool rooms in the country.

3. ELIGIBILITY TO APPEAR IN THE EXAM:

To be eligible to appear in the examination a student must have minimum 75% attendance. This however does not apply to candidates appearing in the examination based on their prior learning.

4. MARKING SCHEME:

Sr. No.	Method of Assessments	Weightage (Max. marks)	Evaluator
1	Written test	40	As nominated by the Examination cell
2	Practical test	60	
Total		100	

5. PASSING MARKS:

Passing criteria is based on marks obtained in written, practical test and viva-voce.

Minimum marks to pass: Written test- 40%

Practical test- 60%

6. RESULTS AND CERTIFICATION:

The result is based on the marks obtain in the evaluation. Evidences are recorded in the form of marks obtained in answer sheet, practical and viva-voce. Certificates are awarded to successful candidates.

ASSESSMENT EVIDENCE

Title of Component: Electronic Equipment Mechanic

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Sr. No.	Outcomes to be assessed	Assessment criteria for the outcome
1	Repair and service electronic gadgets.	Ability to <ol style="list-style-type: none">1. Observe safety precautions while working with electricity.2. Observe precautions while handling electronic ICs.3. Assess the problem reported.4. Read the product manual.5. Observe the circuit.6. Give estimate of the time required to accomplish the repair.7. Repair faulty parts.8. Test system for its proper functioning.
2	Preventive maintenance.	Ability to <ol style="list-style-type: none">1. Check for proper connections, fuse.2. Check battery.3. Remove dust.4. Clean circuit with appropriate cleaning agents.5. Test system for its proper functioning.
3	Operator in assembly line in electronic industries.	Ability to <ol style="list-style-type: none">1. Handle hand tools appropriately.2. Perform soldering and Desoldering.3. Handling and operation of common testing/measurement equipments.4. Fix accessories in panel.5. Testing of final product.
4	Setup own electronic repair and service centre.	Ability to <ol style="list-style-type: none">1. Prepare project report for financial assistance to setup enterprise.2. Keep oneself updated with the emerging trends of repairing/products.3. Undergo day to day activities of the enterprise.
Means of assessment 1 and 2 Skill performance is assessed by conducting <ol style="list-style-type: none">i) Written test for each courseii) Final written test for all courseiii) Practical exam for each practical componentiv) Final practical test for all practical componentsv) Final viva-voce		
Pass/Fail Passing criteria is based on marks obtained in written, practical test and viva-voce. The minimum pass percentage for each means of assessment is given below- <ol style="list-style-type: none">i) Written test- 40%ii) Practical test-60%		

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SECTION 2

EVIDENCE OF LEVEL

Option A

Title/Name of qualification/component: Electronic Mechanic 4			Level:
NSQF Domain	Outcomes of the Qualification/Component	How the job role relates to the NSQF level descriptors	NSQF Level
Process	<ul style="list-style-type: none"> Attend to service requests. Assess the problem reported. Give estimate of the time required to accomplish the repair. If any change of parts required give approximate cost of the replacement. If replacement part not available with the mechanic give estimate of time required for the part to be available. 	An Electronic Mechanic works in three kinds of assignments- installation, servicing & maintenance and sometimes in manufacturing. Generally there are service requests inputs based on which the mechanic acts. He collects first information from the customer and then analyses the problem by his own observation and tests during which his skills comes into play. Since the products on which he provides his services are not unlimited he is more or less familiar with the situation and can generally predict the problem at his first observation.	4
Professional knowledge	<ul style="list-style-type: none"> Knowledge of electronic components identification and it's working. Knowledge of equivalence of components so that if the exact component is not available its equivalent can be used. Knowledge of operating various gadgets/appliances/equipments/machines. Knowledge of various parts/modules of equipments. 	A mechanic has to have thorough knowledge of the equipment which he is attempting to repair. He also has to have knowledge of the individual modules of that equipment. This in depth knowledge helps him to troubleshoot the problem in many folded approach. First he tries to see the problem from silly faults, if that does not prove to be true he then has to go to the depth of the modules for which he needs thorough knowledge of the components of the modules.	4
Professional skill	<ul style="list-style-type: none"> Methodic disassembly of gadgets/appliances/equipments/machines. Visual checking of appropriate connection of modules. 	In conducting the repair a lot of skills of the mechanic come into act. He has to make sure that when disassembling the system he goes by a systematic approach and does not induce scratch on the equipment. The disassembled fixtures are to be safely kept to be used again during	4

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	<ul style="list-style-type: none"> • Visual checking of electronic components in a PCB. • Testing of electronics components. • Replacing any faulty part. • Soldering & desoldering. 	<p>assembly. He has to make sure that the resoldered part is aligned in the right manner/polarity. These skills are required repetitively in his work/activity.</p> <p>Though the type of equipments on which he may work is large but the basic skills required are the same.</p>	
Core skill	<ul style="list-style-type: none"> • Do basic mathematical calculations. • Use tools appropriately. • Communicate in local language in oral and written. • Locate and reach the place of complaint. 	<p>Mechanic should be in touch with the customer to get repair jobs regularly. It is not necessary that the call is always for a breakdown, but can also be for installation and regular maintenance.</p> <p>He needs to be able to communicate and also needs to be aware of the social, political and natural environment.</p>	4
Responsibility	<ul style="list-style-type: none"> • Responsible to attend to service requests on time, assess the magnitude of the problem and give estimate of the time & cost required to accomplish the repair. 	<p>A mechanic is responsible to attend to the call on time, listen to the problem reported, analyze and approach the problem and give solution. He needs to keep improving himself so that he is able to adapt to the new products.</p>	4

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SECTION 3

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

We are surrounded by a lot of gadgets and it is inevitable for these gadgets to work throughout without a glitch. Sometime or the other fault is bound to occur. With the growing consumer purchase capacity we are surrounded by lot of these gadgets in our households and everywhere. In addition to this there is the industrial and commercial sector which invests hugely on capital goods. This can be seen as an opportunity for the Electronic Mechanic. His job will be required anywhere in the lifecycle of these products be it installation & commissioning or maintenance or after sales service. He can be engaged either in a company or run the service on his own through his workshop. So this qualification is indeed very much needed.

What is the estimated uptake of this qualification and what is the basis of this estimate?

It is a common course in most of the ITI's and vocational training institutes. Also from our past record almost 60% of the students are placed. And being a self employment based course it is expected that those who are not placed have already planned to go on their own. This is directing us to estimate a batch of 50-60 students uptake in each of the ITI/institutes.

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

After an extensive study of the NOS and QPs of the various skill sectors we found that the qualification of Electronic Mechanic is available but the duration of the course that undertake is not similar to the one already published in the NQR website. Hence we propose this course to be granted as a separate course under NSQF framework.

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?

The process of taking feedback is periodically undertaken at our end. However it is not possible to update the qualification at that periodicity. The feedback is reviewed, brainstormed and accepted /rejected based on its merit. A review date has been fixed as mentioned in 'Date of planned review of the qualification'.

SECTION 4

EVIDENCE OF RECOGNITION AND PROGRESSION

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?

Vertical Progression

Field Engineer – RACW, Solar PV System Installation Engineer



Electronic Equipment Mechanic

Horizontal Progression

Electronic Mechanic



Access Controls Installation Technician



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