

Revised Application Documentation: Version 5 /25 May, 2019

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Electronics Sector Skills Council of India,

422, Okhla Industrial Estate, Phase – III, New Delhi - 110020

Name and contact details of individual dealing with the submission

Name: Rakesh Mathur

Position in the organisation: Senior Vice President

Address if different from above

Tel number(s)

T: +91-11-46035050

M: +91-98102 85345

E-mail address: qp@essc-india.org

List of documents submitted in support of the Qualifications File

1. Qualification Pack for Assembly Operator – Energy Meter
2. Occupation Map
3. RFP for development of National Occupational Standards
4. Mapping of Manpower skills in IT Hardware and Electronics Industry – MAIT (2009)
http://www.essc-india.org/Essc/reports/MAIT0Report2008_15711.pdf
5. Approval of QP/ NOSs
 - a) Minutes of the meeting of GC
 - b) Composition of the Technical Committee
6. ESSCI IMaCSLMIS Report
7. List of Companies and industry associations which participated in the development of these qualifications packs
8. Assessment Procedure – Assessing bodies and Assessor

QUALIFICATION FILE SUMMARY

Qualification Title:	Assembly Operator – Energy Meter; ELE/Q7304		
Body/bodies which will assess candidates	Electronics Sector Skills Council of India		
Body/bodies which will award the certificate for the qualification.	Electronics Sector Skills Council of India		
Body which will accredit providers to offer the qualification.	Electronics Sector Skills Council of India		
Occupation(s) to which the qualification gives access	Assembly Operator – Energy Meter: The Energy Meter Assembly Operator is responsible for checking if the sensor is functional and enclosing the PCB in the outer case.		
Proposed level of the qualification in the NSQF.	3		
Anticipated volume of training/learning required to complete the qualification.	200		
Entry requirements / recommendations.	12th standard passed, ITI/Diploma (Electronics/Electrical)		
Progression from the qualification.	Supervisor, production Head		
Planned arrangements for RPL.	Will be done at the place where required lab. Facility could be arranged.		
International Comparability.	Not established.		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/Optional	Estimated size (learning hours)	Level
ELE/N7305 Assemble Energy Meter	Mandatory	100	3
ELE/N9962 Interact with coworkers	Mandatory	50	3
ELE/N9963 Maintain safe work surroundings	Mandatory	50	3

Please attach any document giving further detail about the structure of the qualification – eg a Curriculum or Qualification Pack.

Give details of the document here:

Refer Page 1 for the list of attachments

SECTION 1

ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

- **Aspiring Minds**
- **Mettl**
- **IQAG**

Will the assessment body be responsible for RPL assessment? Yes.

Give details of how RPL assessment for the qualification will be carried out and quality assured.

RPL will be based on the same Qualification Pack and Assessment Criteria mentioned in the QP. The process of RPL assessment is under development.

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:

The emphasis is on practical demonstration of skills and knowledge based on the performance criteria. Assessment design team carries on research for understanding job details, followed with competencies mapping for the module and for the performance criteria. The assessment papers are created by the Subject Matter Experts and moderated by Assessment Designers of Assessment Partners as per the assessment criteria, for theory and practical questions considering the lab facility available for the assessments. The Assessment Sets prepared by Assessment Partners are reviewed by ESSCI for consistency and match with the level of the QP.

The assessment partners are instructed to hire assessors with integrity, reliability and fairness and have them sign an agreement confirming confidentiality, no conflict of interest or any other position, which may compromise the quality of assessment. The assessors need to have adequate hands-on experience in the domain, preferably at a level above the position for which they conduct the assessment.

Assessors are trained on the assessment process, and the question set. At the time of the assessment, the assessors check the identity of the candidates with a photo identification card and attendance during the training. They also take snapshots photographs of the practical assessments, and get the attendance for the assessment signed off by the candidate.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

CRITERIA FOR ASSESSMENT OF TRAINEES

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role	Energy Meter Assembly Operator
QP #	ELE/Q7304
Sector Skill Council	Electronics Sector Skills Council of India

Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create *unique question papers for theory part for each candidate at each examination/training center*(as per assessment criteria below)
4. Individual assessment agencies will create *unique evaluations for skill practical for every student at each examination/training center* based on this criteria
5. To pass the Qualification Pack , every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Element	Performance Criteria	Total Marks (400)	Out Of	Marks Allocation	
				Theory	Skills Practical
ELE/N3801 Develop electrical system design drawings					
Understanding work requirement	PC1. interact with the supervisor in order to understand the production schedule	100	4	1	3
	PC2. plan the day's production activities based on the supervisor's instructions		4	1	3
	PC3. use drawings, job instructions or work manuals		4	1	3
	PC4. check availability of materials required for assembly		4	1	3
Assembling electronic energy	PC5. collect assembled printed circuit boards from stores		4	2	2
	PC6. use a magnet in order to check if the sensor is		4	2	2

meter	functioning properly				
	PC7. collect the plastic enclosure and any other consumables from stores	4	2	2	
	PC8. connect the leads of the top cover of the enclosure to system	4	2	2	
	PC9. program the micro controller with the serial number assigned to the meter	4	2	2	
	PC10. place the meter in the jig to synchronise it with the GPS timer	4	2	2	
	PC11. check phase to phase and phase to neutral current values using the test jig	4	2	2	
	PC12. keep meters failing the test apart from the functional ones	4	2	2	
	PC13. operate hot sealing/stacking machine in order to enclose the system with the top cover	4	2	2	
	PC14. ensure that the name plate is inserted before the hot sealing process	4	2	2	
	PC15. put all the meters in a storage bin to be passed on to the packaging team	4	2	2	
Reporting to superior	PC16. highlight any errors in previous step of the assembly process identified	4	2	2	
	PC17. report defective or inadequate number of components in time	4	2	2	
	PC18. report about inadequate quantity of consumables	4	2	2	
Achieving productivity, quality and safety standards	PC19. achieve 100% work schedule as planned for the day	4	1	3	
	PC20. meet 100% daily or monthly target	4	1	3	
	PC21. achieve zero errors in assembling as per company policy	4	1	3	
	PC22. achieve zero component damage because of electrostatic discharge	4	1	3	
	PC23. check any repetitive defects during the assembly process	3	1	2	
	PC24. keep work area clean and organised	3	1	2	
	PC25. identify problems on the assembly line and alert in time	3	1	2	
	PC26. achieve 100% compliance with health and safety guidelines and rules	3	1	2	
	TOTAL	100	40	60	
ELE/N9901 Interact with colleagues					
Interacting with	PC1. understand work requirements, targets and incentives	100	6	3	3

supervisor	PC2. learn about new product models, their features and functions		6	3	3
	PC3. report problems identified in the field		6	3	3
	PC4. escalate customer concerns that cannot be handled on field		6	3	3
	PC5. resolve personnel issues		6	3	3
	PC6. receive feedback on work standards and customer satisfaction		6	3	3
	PC7. communicate any potential hazards at a particular location		6	2	4
	PC8. meet given targets		6	2	4
	PC9. deliver work of expected quality despite constraints		6	2	4
	PC10. Have feedback from a happy and satisfied customer		6	2	4
	Interacting with colleagues		PC11. resolve inter-personnel conflicts and achieve smooth workflow	6	2
PC12. receive spares from tool room or stores			6	2	4
PC13. deposit faulty modules and tools to stores			6	2	4
PC14. pass on customer complaints to colleagues in a respective geographical area			6	2	4
PC15. assist colleagues with resolving field problems			6	2	4
PC16. share knowledge and experience gained through every day work			5	2	3
PC17. clearly demarcate roles of each team member			5	2	3
			TOTAL	100	40
ELE/N9963 Maintain safe work surroundings					
Following safety measures and standards	PC1. comply with general safety procedures followed in the company	100	8	4	4
	PC2. follow standard safety procedures while handling an equipment, hazardous material or tool		8	3	5
	PC3. remove rings or any other metal objects before working on the unit		8	3	5
	PC4. use of safety materials such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, etc.		8	3	5
	PC5. escalate about any hazardous materials or things found in the premises		8	3	5
	PC6. report about any breach of safety procedure in the company		8	3	5
	PC7. ensure zero accidents at work		8	3	5

	PC8. avoid damage of components due to negligence in ESD procedures		8	3	5
	PC9. regularly participate in fire drills or other safety related workshops organised by the company		8	3	5
	PC10. ensure no loss for company due to safety negligence		7	3	4
Maintaining good health and posture	PC11. maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials		7	3	4
	PC12. participate in company organised health sessions such as yoga, physiotherapy or games		7	3	4
	PC13. handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, jacks and ladders		7	3	4
		TOTAL	10	40	60
		L	0		

SECTION 2

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

Feedback from the industry was collected with respect to the past and projected industry growth, projected employee growth during next 5 years (Refer to Pages 14 to 27 of the LMIS report), skill gaps identified in entry level qualified workforce for the sub-sector (Refer to Page 31 of the LMIS report), and current employment number for the qualification (Refer to Occupation Map). This enabled prioritization of the development of the qualification packs.

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

Estimated uptake of the qualification is obtained from the current employment (refer to the Occupation Map) times the projected employee growth for the sub-sector (Refer to Pages 21 to 27 of LMIS report). This is the basis for planning training with the industry and training providers.

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

NSDCQRC team checks and confirms this.

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?

Technical Committee's inputs are sought from time-to-time as needed to check the relevance of QP/ NOSs, and the revision exercise is undertaken, as needed.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

Refer Page 1 for the list of attachments

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Level of qualification: 3

Summary of Direct Evidence (from learning outcomes):

Qualification Title and Classification Code: Assembly Operator – Energy Meter; ELE/Q7304					
Process Required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
<p>the job holder must be able to collect assembled printed circuit boards from stores, use a magnet in order to check if the sensor is functioning properly, collect the plastic enclosure and any other consumables from stores, connect the leads of the top cover of the enclosure to system, program the micro controller with the serial number assigned to the meter, place the meter in the jig to synchronise it with the GPS timer, check phase to phase and phase to neutral current values using the test jig, keep meters failing the</p>	<p>The job holder needs to know and understand circuitry and functioning of different modules of the energy meter , phase-phase, phase-neutral current and voltages and related calculations , block diagram of the energy meter and functioning of current transformers, micro controller , single phase and three phase voltage/current , induction principle and different types of energy meters available such as Ferrari wheel meter, electronic meter, etc. , procedure and principle behind calibration of energy meter ,</p>	<p>The job holder needs to know and understand how to reduce repetitive errors, to improve work process Decision making, when to seek supervisor’s advice during assembly process Using tools and machines, to operate/use tools such as soldering iron, programming and testing jigs, multi-meter, clamp meter, etc. . Since job holder is required to Recall and demonstrate practical skill, routine and repetitive in narrow range of application, this is pegged at level 3</p>	<p>The job holder needs to know and understand how to read warnings, instructions and other text material on product labels, components, etc., read drawings and job sheets or work orders . Considering requirement of Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment, this is pegged at level 3</p>	<p>The job holder must be able to Understand requirement from the supervisor, Assemble electronic energy meter, Report problems to supervisor, Achieve productivity, quality and safety standards as per company’s norms Performance Criteria(, . The job holder works under Under close supervision and has some responsibility for own work within defined limit, hence pegged at level 3.</p>	<p>3</p>

<p>test apart from the functional ones, operate hot sealing/stacking machine in order to enclose the system with the top cover, ensure that the name plate is inserted before the hot sealing process, put all the meters in a storage bin to be passed on to the packaging team, . Considering that job holder is required to carry out a job which may require limited range of activities routine and predictable. this is pegged at level 3</p>	<p>safety norms in handling electronic components and electrostatic discharge , . Due to the requirement of Basic facts, process and principle applied in trade of employment, this is pegged at level 3</p>				
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Summary of other evidence (if used):

SECTION 4

EVIDENCE OF RECOGNITION OR 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 mobility options are available in the Occupation map.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

Refer Page 1 for the list of attachments