**NSDA Reference**

*To be added by NSDA*

**CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE**

**Name and address of submitting body:**

West Bengal State Council of Technical & Vocational Education and Skill Development

KarigariBhavan(5th Floor), Plot-B/7, Action Area-III

New Town, Kolkata-700160

**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. Curriculum and Course Content
2. Assessment strategy

**SUMMARY**

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| --- | --- | --- | --- | --- |
| **Qualification Title** | Servicing of Domestic Electronics Products | | | |
| **Qualification Code** |  | | | |
| **Nature and purpose of the qualification** | Short term Certificate Course  To become self-employed i.e. entrepreneurs or wage employed under MSME | | | |
| **Body/bodies which will award the qualification** | West Bengal State Council of Technical & Vocational Education and Skill Development | | | |
| **Body which will accredit providers to offer courses leading to the qualification** | Committee on Recognition under the West Bengal State Council of Technical & Vocational Education and Skill Development | | | |
| **Body/bodies which will carry out assessment of learners** | Board of Examination under the West Bengal State Council of Technical & Vocational Education and Skill Development | | | |
| **Occupation(s) to which the qualification gives access** | Service Technician | | | |
| **Licensing requirements** | NA | | | |
| **Level of the qualification in the NSQF** | Level 3 | | | |
| **Anticipated volume of training/learning required to complete the qualification** | 650 hours | | | |
| **Entry requirements and/or recommendations** | Class VIII pass | | | |
| **Progression from the qualification** | Jr. Service Technician -----Service Technician--------Sr. Service Technician. | | | |
| **Planned arrangements for the Recognition of Prior learning (RPL)** | RPL will consist of four stages   1. Counselling- To inform, advise and guide the candidates regarding RPL 2. Pre-Assessment- To assess the current competencies of the candidates and identifying the gap between the full qualification and current competencies. 3. Orientation &Bridge Training- To train the candidates for bridging the gap. 4. Final assessment & Certification- To assess the candidate for full qualification and certify. | | | |
| **International comparability where known** | N/A | | | |
| **Date of planned review of the qualification.** | Every 3 years(Next Feb 2021) | | | |
| **Formal structure of the qualification**  After completion of course the passed out trainee can work as an Jr. Service Technician and after two years of field experience the passed out trainee can work as a Service Technician and after that with appropriate experience, the person can work as a Senior Service Technician. | | | | |
| Title of component and identification code. | | Mandatory/ Optional | Estimated size (learning hours) | Level |
| Apply safe working Practices | | Mandatory | 25 | 3 |
| Demonstrate the elementary knowledge of Electricity,the types of currents, different series-parallel circuits & able to measure different parameters of AC & DC Currents. | | Mandatory | 20 | 3 |
| Identify the basic components like different types of resistors, capacitors, inductors, normal diodes as well as zener diodes, relays & transformers. | | Mandatory | 50 | 3 |
| Understand and enable to measure the different parameters of resistors, capacitors, inductors, normal diodes as well as zener diodes, relays & transformers with the help of Multi-meter. | | Mandatory | 30 | 3 |
| Enable to design &control Troubleshooting Regulated Power Supply. | | Mandatory | 30 | 3 |
| Analyse the performance of CE Amplifier Circuit with the help of CRO & Function Generator. | | Mandatory | 20 | 3 |
| Understand the working principles of different stages of AM & FM Radio circuit. | | Mandatory | 30 | 3 |
| Test and find the different types of faults of AM & FM radio circuit. | | Mandatory | 100 | 3 |
| Demonstrate knowledge of different sections of B/W Television & its corresponding different types of fault findings. | | Mandatory | 50 | 3 |
| Understand the basic principles of   1. Fan Regulator/Light Dimmer 2. Calling Bell 3. Electronic Buzzer 4. Emergency Light 5. Digital Clock 6. CD & DVD   andidentify troubleshooting & servicing of the modules. | | Mandatory | 150 | 3 |
| Understand the fundamentals of Digital Electronics like Binary Number, Truth Table of different Logic Gates (familiarize with the Digital IC’s) . | | Mandatory | 20 | 3 |
| Demonstrate the concept of different parts of a Computer. | | Mandatory | 50 | 3 |
| Understand and practice soft skills | | Mandatory | 25 | 3 |
| Demonstrate knowledge of concept and principles of basic arithmetic and financial calculation, and apply knowledge of specific area to perform practical operations. | | Mandatory | 25 | 3 |
| Explain time management, entrepreneurship and manage/organize related task in day to day work for personal & social growth. | | Mandatory | 25 | 3 |

| **Title of component and identification code.** | **Mandatory/Optional** | **Estimated size (learning hours)** | **Level** |
| --- | --- | --- | --- |
| **I. Theory**  **Theory component of the course is to develop relevant basic technical information & knowledge about simple electronics appliances and function of their components.**  **II. Practical**   1. **Institutional component of Practical training of the course is to impart relevant basic technical skills to perform servicing of domestic electronicsproducts like radio, TV, Fan regulator, Emergency Light etc.**   **III. Employability Skills**  **Employability Skills component of the course is to impart Soft skills which include Communication Skills, Behaviour, IT literacy, Entrepreneurship Skills, Safety, Hygiene etc.** | **Mandatory**  **Mandatory**  **Mandatory** | **100**  **450**  **100** | **3**  **3**  **3**  **3** |
| **Total (I+II+III)** |  | **650** |  |

1. Curriculum Document is attached in Annexure-1.
2. Assessment Strategy Component wise distribution of marks is given in the Annexure No. 2
3. Industry Validation

**SECTION 1**

**ASSESSMENT**

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| **Body/Bodies which will carry out assessment:**  Board of Examination under West Bengal State Council of Technical & Vocational Education & Skill Development, constituted under the ACT XXVI of 2013 under Department of Technical Education, Training & Skill Development, Govt. of West Bengal  **How will RPL assessment be managed and who will carry it out?**  RPL will consist of four stages   1. Counselling- To inform, advise and guide the candidates regarding RPL 2. Pre-Assessment- To assess the current competencies of the candidates and identifying the gap between the full qualification and current competencies. 3. Orientation &Bridge Training- To train the candidates for bridging the gap. 4. Final assessment & Certification- To assess the candidate for full qualification and certify.   RPL assessment will be managed by PBSSD (PaschimBanga Society for Skill Development) under Department of Technical Education, Training & Skill Development, Govt. of West Bengal.  **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.**  Assessment will be carried out by Board of Examination under West Bengal State Council of Technical & Vocational Education & Skill Development, under Department of Technical Education, Training & Skill Development, Govt. of West Bengal.  The Council has all necessary infrastructure and pool of qualified Assessors/ Examiners to carry out such assessments. Presently the Council is conducting all examinations for all courses which includeDiploma Courses, Vocational Courses in VIII+ level and X+2 level &other Short term Courses. Council also conducts all State Level Entrance tests like JEXPO for admission to Diploma Courses in Polytechnics, VOCLET for lateral entry to Diploma Courses in Polytechnics and CET (Common Entrance Test ) for admission to NCVT courses in ITIs. |

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**ASSESSMENT EVIDENCE**

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

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

**Title of Component:**

|  |  |
| --- | --- |
| **Outcomes to be assessed** | **Assessment criteria for the outcome** |
| 1. Apply safe working Practices | (1.1) Assessor will note whether the trainee is maintaining procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements according to site policy.  (1.2) Assessor can judge thetraineeon his ability to recognize any unsafe situations according to site policy, and assess his report accordingly.  (1.3) Assessor will note whether the trainee can identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.  (1.4) Assessor will ask the trainee to demonstrate safety alarms accurately.  (1.5) Assessor will assess the report/recordsubmitted by trainee to supervisor/ Competent of authority in the event of accident or sickness of any staff, including accident details according to site accident/injuryprocedures  (1.6) Trainee will be asked to demonstrate Personal Productive Equipment (PPE) and use the same as per related working environment.  (1.7) Trainee will be asked to demonstrate basic first aid & CPR and use them under different circumstances.  (1.8) Trainee will be asked to identify different fire extinguishers and to use the same as per requirement in a mock drill |
| 1. Demonstratethe elementary knowledge of Electricity, the types of currents, different series-parallel circuits & able to measure different parameters of AC & DC Currents. | Assessor will ask the trainee to  (2.1) solve the simple problems on series-parallel resistive circuits  (2.2) measure amplitudes of AC & DC Voltage, Currents |
| 1. Identify the basic components like different types of resistors, capacitors, inductors, normal diodes as well as zener diodes, relays & transformers. | Assessor will ask the trainee to  (3.1) Identify different types of Resistors &capacitors  (3.2) Identify different types of Diodes.  (3.3) Identification of Primary &Secondary terminal as well as types of Transformer  (3.4) Identify Relays & inductors |
| 1. Understand and enable to measure the different parameters of resistors, capacitors, inductors, normal diodes as well as zener diodes, relays & transformers with the help of Multi-meter. | Assessor will ask the trainee to  (4.1) determine Colour coded value of Resistors &capacitors & measurement by using multimeter.  (4.2) test weather Diode is open/short/working & identify polarity.  (4.3)measure Voltage of Transformer Primary &Secondary by using multimeter.  (4.4) test Relay & inductors. |
| 1. Enable to design & control Troubleshooting Regulated Power Supply. | Assessor will ask the trainee to  (5.1) test output voltage of different sections of a Regulated Power Supply.  (5.2) measure waveform of different sections with the help of CRO. |
| 1. Analyse the performance of CE Amplifier Circuit with the help of CRO & Function Generator. | Assessor will ask the trainee to  (6.1) test output voltage of different stages.  (6.2) measure waveform of different stages with the help of CRO. |
| 1. Understand the working principles of different stages of AM & FM Radio circuit. | Assessor will ask the trainee to  (7.1) test output voltage of different stages.  (7.2) measure waveform of different stages with the help of CRO. |
| 1. Test and find the different types of faults of AM & FM radio circuit. | Assessor will ask the trainee to  (8.1)find the common faults of AM & FM radio circuit.  (8.2) solve common troubleshooting faults. |
| 1. Demonstrate knowledge of different sections of B/W Television & its corresponding different types of fault findings. | Assessor will ask the trainee to  (9.1)measure output voltage of different stages.  (9.2) measurement of waveform of different stages with the help of CRO.  (9.3) find common faults of B/W Television.  (9.4) solve common troubleshooting faults. |
| 1. Understand the basic principles of 2. Fan Regulator/Light Dimmer 3. Calling Bell 4. Electronic Buzzer 5. Emergency Light 6. Digital Clock 7. CD & DVD   and identify troubleshooting & servicing of the modules. | Assessor will ask the trainee to  (10.1) working of different stages of circuit.  (10.2) find common faults.  (10.3) solve common troubleshooting faults by observation. |
| 1. Understand the fundamentals of Digital Electronics like Binary Number, Truth Table of different Logic Gates (familiarize with the Digital IC’s) . | Assessor will ask the trainee to  (11.1)draw Truth Tables of different Logic Gates.  (11.2) know about the Pin diagram of TTL &CMOS IC’s.  (11.3) Check the pin voltage.  (11.4) Realize small Boolean Expressions with TTL &CMOS IC’s. |
| 1. Demonstrate the concept of different parts of a Computer. | Assessor will ask the trainee to  (12.1) demonstrate the different parts of Hardware components of a Computer  (12.2) know about the functions and connection of UPS  (12.3) assess the preliminary knowledge of Motherboard. |
| 1. Understand and practice soft skills | (13.1) Assessor will rate the trainee on his ability to practice soft skills, including clear and concise communication, in day to day work with team and with higher authority |
| 1. Demonstrate knowledge of concept and principles of basic arithmetic and financial calculation, and apply knowledge of specific area to perform practical operations. | (14.1) Apply basic arithmetic calculations for arriving dimensional parameters as per drawing.  (14.2) Apply basic financial calculation to understand cost of materials & labour and basic concepts of profit/loss,  (14.3) Engage in basic banking transactions as customer |
| 1. Explain time management, entrepreneurship and manage/organize related task in day to day work for personal & social growth. | (15.1) Ascertain appropriate time for the assigned task.  (15.2) Execute the assigned task within time frame.  (15.3) Manage own work within specified time.  (15.4) Explain importance & factors affect the development of entrepreneurship.  (15.5) Identify service providers for developing entrepreneur/business establishment. |
| **Means of assessment 1**  There will be two types of Assessments viz. Formative and Summative. The Formative Assessment will be carried out continuously during the conduct of course and Summative Assessment will be carried out at the end of the course. Details are mentioned under means of Assessment-2. Written test, Practical examination/ Skill test & Viva voce | |
| **Means of assessment 2**   1. **Means of Formative Assessment (Total marks allotted- 350)** 2. Assignments for each module of Theory component 3. Assignments for each module of Employability Skills component 4. Continuous evaluation of each module of Practical 5. **Means of Summative Assessment(Total marks allotted- 650)** 6. Written test for Theory component 7. Written test for Employability Skills component 8. Practical Test &VivavoceforPractical Component.   Component wise distribution of marks is given in the Annexure 2 | |
| **Pass/Fail**   |  | | --- | | **Pass/Fail**  Passing criteria is based on marks obtained in Formative and Summative Assessment taken together as mentioned in Annexure No-1   1. Minimum Marks to pass Theory component– 60% 2. Minimum Marks to pass Employability Skills component– 60% 3. Minimum Marks to pass practical component– 70% 4. Minimum attendance required to appear in the final examination- 75% | | |

**SECTION 2**

**EVIDENCE OF LEVEL**

**OPTION A**

| **Title/Name of qualification/component: Asst. House Wireman and Motor Winder Level:** 3 | | | |
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| **NSQF Domain** | **Outcomes of the Qualification/Component** | **How the outcomes relates to the NSQF level descriptors** | **NSQF Level** |
| Process | Job holder will be able to install or repair basic domestic electronics products while maintaining occupational health & safety parameters. | Job holder will understand and comply with safety practices while undertaking works in domestic electronics products The nature of work involved is repetitive and routine. | Level 3 |
| Professional knowledge | Job holder will be able to   * Understand fundamental electrical and electronics theories, signs & symbols, circuit diagram and connections. * Use different tools & equipments * Understand basic principles for operation of various simple domestic electronics products. * Understand working of different parts of various simple domestic electronics products | Job holder will understand the basic concepts, facts, principles and processes in relation with simple domestic electronics products. | Level 4 |
| Professional skill | The user/individual will know and understand how to:   * assess and decide whether safety tools/ gears (if any) are installed properly, check condition of materials. * decide defective parts of an electronics product. * decide ways to repair * engage in repairing of the defective parts | The job holder will demonstrate use of various tools and materials and repair a defective electronics product on his own. The range of application of practical skill is narrow and repetitive. | Level 3 |
| Core skill | The job holder will be able to   * read at least two languages, preferably in the local language of the siteand basic English * read and interpret safety sign boards, signage, tags etc. provided atworkplace * speak in at least one language, preferably in one of the local languages of thesite * listen and interpret instructions / communication by co-workers * listen and follow instructions given by supervisor * orally and effectively communicate with team members * engage in basic financial and banking transactions * Understand principles of time management and entrepreneurship | The job holder will be able to communicate clearly, both in writing and orally, with co-workers, supervisors and customers. He will be able to use basic arithmetic calculations for his work and use basic banking services both on professional and personal level. | Level 3 |
| Responsibility | The job holder will work under the close supervision of supervisor and he will be responsible for   * Understanding safety compliance while engaging in servicing of electronics products. * Independently carry out repair work of a defective domestic electronics product. | Job holder is required to carry out functions such as soldering, desoldering, dissemble and assemble a product and repair the defective one. In these activities job holder is doing the tasks independently, with supervision in certain risky jobs. | Level 3 |

**SECTION 3**

**EVIDENCE OF NEED**

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| **What evidence is there that the qualification is needed?**  Government of West Bengal offers 42 courses in VIII+ category and trains approximately 1.5 lakhs beneficiaries per year through its 2400 approved VTCs since last 10 years. Assessment and Certification is done by the West Bengal State Council of Technical & Vocational Education and Skill Development for these courses. Servicing of Domestic Electronic Product is one of these 42 courses which are successfully conducted by Government of West Bengal. |
| **What is the estimated uptake of this qualification and what is the basis of this estimate?**  There has been significant opportunities for the particular course as the course is operational for more than 10 years |
| **What steps were taken to ensure that the qualification does not duplicate already existing or planned qualifications in the NSQF?**  This qualification is being conducted under the West Bengal State Council of Technical & Vocational Education & Skill Development under Department of Technical Education, Training and Skill Development since the academic year 2005 in Vocational Training Centres spread all over West Bengal for class- VIII+ pass dropout youths. In the state of West Bengal the Council is affiliating and awarding body for this qualification. Thus there is no other existing or planned qualification (Short term courses) in the state aligned with NSQF. |
| **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 council has three well defined sub-committees namely Board of Studies and Skilling, Board of Examination and Recognition Committee. These committees monitor and review the progress of all qualifications under its purview on a regular basis.  This qualification will be reviewed and revised at an interval of three years on the basis of the outcome of the trainees, placement and self-employment data and feedback from concerned industries/employers. |

Please attach any 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**

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| **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?**  The trainee on completion of the course does not immediately qualify to work as an independent authority. The trainee has to gain at least 2 years of field experience, should be of 21 years of age or older and should necessarily an Indian citizen, when he will become eligible…for Service Technician. Thereafter, he becomes eligible to work as an independent…Dr. Service Technician. From there, he can become either an employee of an organization or become self-employed. In case of employment under an employer, he can progress to various level-wise designations, based on either experience or on obtaining subsequent qualifications. This is as shown below.  Jr. Service Technician  Service Technician  Sr. Service Technician |