Model Curriculum

Mobile Phone Hardware Repair Technician

SECTOR: **ELECTRONICS**
SUB-SECTOR: **COMMUNICATION & BROADCASTING**
OCCUPATION: **AFTER SALES SERVICE**
REF. ID: **ELE/Q8104 VERSION 1.0**
NSQF LEVEL: **4**

Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

ELECTRONICS SECTOR SKILLS COUNCIL OF INDIA

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: '**Mobile Phone Hardware Repairing Technician**'
QP No. '**ELE/Q8104 NSQF Level 4**'

Date of Issuance: **December, 2015**

Valid up to: **March , 2016**

Valid up to the next review date of the Qualification Pack

Authorised Signatory
(Electronics Sector Skills Council of India)

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Mobile Phone Hardware Repair Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a "Mobile Phone Hardware Repair Technician", in the "Electronics" Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Mobile Phone Hardware Repair Technician		
Qualification Pack Name & Reference ID.	Mobile Phone Hardware Repair Technician ELE/Q8104		
Version No.	1.0	Version Update Date	2015-12-09
Pre-requisites to Training	10th standard passed		
Training Outcomes	1. Receiving procedure of the faulty Mobile Phone: Understanding the Procedure to receive the faulty Mobile Handsets from the Customer 2. Diagnose the Problem of the Faulty Mobile Phone: Understanding the possible problems talking with the Customer and using diagnostic tools. 3. Arrangement of Tools and Necessary Parts to Repair the Mobile Phone: Understanding the Tools and Parts Required to Repair the Faulty Mobile Phone. 4. Repair the Hardware of the Faulty Mobile Phone: Understanding the Repairing Techniques of the Faulty Mobile Phone using tools and equipments. 5. Repair the Software of the Faulty Mobile Phone: Understanding the Repairing Techniques of the Faulty Mobile Phone using various Software. 6. Testing the Repaired Mobile phone: Understanding the procedure to test the Repaired Mobile Phone. 7. Co-ordinating with Colleagues: Understanding the procedures to Co-ordinate with colleagues based on the Company Policy. 8. Safety Procedures: Understanding to maintain the safety Procedures to Maintain the safe working environment as per the standard.		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of Mobile Phone Hardware Repair Technician Qualification Pack issued by Electronic Sector Skill Council of India.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	**Interact with customer and perform front end repair** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** **ELE/N8106**	**Engaging with customers** 1. Receive the customers and greet them as per company's norms 2. Follow behavioral etiquettes while interacting with customers 3. Ensure the customers are comfortable in the store 4. Communicate in the language which the customers are comfortable with 5. Understand the profile of the customers and offer service 6. Inform about repair charges and warranty applicable **Understanding the complaint** 7. Interact with customers to understand the customer's purpose of visit such as repair of phone, purchase of accessories, software upload, collection of repaired phone 8. listen to customers and understand the customer level complaint such as display not working, not switching on 9. Interrogate the customers to assess the cause of problem such as physical damage, uploading of any unauthorized software or application 10. Decide on the action to be performed, i.e., front end repair or hardware level repair is required 11. Inform customers about the time taken and estimated cost for hardware level repair 12. Provide document to customers for collecting the device after repair **Documenting on computer** 13. Use the system to identify the warranty coverage of the Mobile Phone and other terms and conditions	1.Computer 2. Diagnostics tools 3. CRM software 4. Company Manual 5. Complain Book 6. Receive Register

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		14. Understand the customer relationship management policy of the mobile brand and inform customers about them	
		15. log into customer portal and enter the details of the customer and other details such as phone model, complaints, warranty coverage	
		16. Understand and use the interactive ERP system of the company and enter appropriate details	
		17. Use the system to prepare invoice, stock management, order placement, accessories availability, etc.	
		Performing front end repair	
		18. Identify problem and decide the action to be taken	
		19. Upload only licensed and brand approved applications as per customer requirement using system	
		20. Understand the application and software compatibility with the Mobile Phone and suggest to customers accordingly	
		21. Check the accessories and perform a demo with the customer to ensure their functionality (chargers, SD card, etc)	
		22. Open the panel of the Mobile Phone without damaging them	
		23. Replace the parts such as battery and clean the inner parts of the phone	
		24. Ensure the functionality of the replaced part	
		25. Provide necessary details on the warranty, terms and conditions of the replaced parts	
		26. Educate customers on effective usage of Mobile Phone to save battery and to avoid any repeat problem	
		Interacting with superior and meeting target	
		27. Understand the work requirement from superior, periodically	
		28. Report to superior on the work	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		completed 29. Seek technical assistance from superior whenever required 30. Document the work completed on the company ERP software for tracking and future references	
2	**Repair and rectify the faults in Mobile Phone** **Theory Duration** (hh:mm) 36:00 **Practical Duration** (hh:mm) 97:00 **Corresponding NOS Code** ELE/N8107	**Following standard repair procedure** 1. Follow the standard procedure as documented by the Mobile Phone brand for each model 2. Take anti static precautions before work and wear ESD wrist straps or aprons 3. Follow standard operating procedure while handling hardware modules such as handling KLOB with ESD standards 4. Use recommended tools for specific operation suggested by the brand 5. Maintain zero-material defect during material handling by following standard operating procedure **Assembling and disassembling the Mobile Phone** 6. Open the outer panel of the Mobile Phone using metal / plastic case opening tools 7. Use the brand recommended screwdrivers to remove the screws to open the inner casing 8. locate the connectors and release them to remove the motherboard from the device 9. Use hot air gun and other devices to remove the LCD screen from the panel 10. Follow similar process and use appropriate tools to assemble the Mobile Phone **Diagnosing the problem** 11. Understand the customer level complaint and confirm the issue 12. Take preventive measures and identify if there are any other issues in the Mobile Phone	1. SMD REWARK STATION. 2. SOLDERING IRON 10Wt. 3. MICRO SOLDERING IRON WITH TEMP CONTROL. 4. BGA KIT. 5. PPD PASTE. 6. SOLDER WIRE. 7. PCB HOLDER. 8. JUMPER WIRE. 9. ULTASONIC PCB CLEANER. 10. MULTI SCREW DRIVE SET. 11. T-4,T-5 SCREW DRIVER SET. 12. MOBILE OPENER. 13. ANTI STATIC MAT. 14. MAGNIFYING LAMP. 15. BATTARY BOOSTER. 16. MULTI CHARGER. 17. COMPUTER WITH FLASHING UNIT. 18. FLASHING CABLES. 19. MOBILE PCB OF DIFFERENT MODELS .

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		13. Use the self diagnostic tools (similar to power on self test (POST) card) to perform standard diagnosis process and ensure functionality of different parts of the device 14. Follow the standard diagnostic procedure as documented by the Mobile Phone brand for each model 15. Check the recently installed application or software and verify the compatibility of the software with the Mobile Phone **Fixing the software** 16. Check the recently installed application or software and verify the compatibility of the software with the Mobile Phone 17. Uninstall the applications that is not compatible or creating issues in the Mobile Phone 18. Install the licensed and authorized software's to resolve issues and suiting the customer's requirement **Repairing the component or module** 19. Understand the scope of component level of repair as suggested by the brand 20. Estimate the cost of repair and verify if it is with in Beyond Economic Repair (BER) 21. Heat the singled out component using hot air gun to melt the solder joints and remove from KLOB 22. Clean the board by melting the old solder and removing 23 .Place the new component precisely on the board at specified location 24. Solder the component on the KLOB using soldering stations 25. Ensure the soldering is proper and the component is fixed as per the specification 26. Operate automated BGA (ball grid array) work station to precisely remove the chip from the board and repair them	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		27. Perform reballing function by dismantling, heating the chip to be removed from the board, remove the solder remains, put new solder balls, place the chip and solder them with the KLOB	
		28. Check for functioning of the hardware after repairing	
		29. Ensure that there is no damage of KLOB while removal and fixing of SMD components	
		30. Ensure other components are not damaged while using hot air gun for removal of a component which could cause damage	
		31. Ensure adequate soldering for fixing the component and no further rework is required	
		Replacing faulty component	
		32. Receive spare module / component from stores	
		33. Identify and decide on replacing the module or component as the appropriate solution	
		34. Take adequate measures and follow procedures when replacing expensive or delicate components such as LCD	
		35. Ensure that cost of replacing is justified as the repair cost is beyond economic repair (BER)	
		36. Ensure that replaced module or component is working and no further rework is required	
		Using equipment	
		37. Identify and use appropriate tools and manuals for repairing the specific issue	
		38. Prevent any accidents while handling hazardous tools	
		39. Achieve results using appropriate tools for specific rework activity	
		40. Maintain zero-material defect during material handling by following standard operating procedure for tools handling	
		Seeking assistance on unresolved faults	
		41. Seek technical assistance from engineer on faults that cannot be fixed	

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		42. Receive instruction from engineers on use of specific tools or new repair processes 43. Discuss with superior if the cost estimate is found to be Beyond Economic repair (BER) and take recommended action 44. Coordinate with superior for performing quality check on the repaired module **Reporting and achieving productivity target** 45. Report on the work load and completion status 46. Submit the appropriate documentation on completion of task assigned 47. Document the work completed on the company ERP software for tracking and future references 48. Achieve 100% daily and weekly target of number of repairs 49. Meet the target of quality as per the Service Level Agreement (SLA) of the brand and avoid rework 50. Repair within the turnaround time (TAT) and deliver them	
3	**Coordinate with colleagues** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** ELE/N9909	**Interacting with supervisor** 1. Understand and assess work requirements 2. Understand the targets and incentives 3. Understand new operating procedures and constraints 4. Report problems in the field 5. Resolve personnel issues 6. Receive feedback on work standards and customer satisfaction 7. Communicate any potential hazards at a particular location 8. Meet given targets 9. Deliver work of expected quality despite constraints 10. Receive positive feedback on behaviour and attitude shown during interaction **Coordinating with colleagues** 11. Interact with colleagues from different functions and understand the nature of their	N/A

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		work	
		12. Receive spares from tool room or stores; deposit faulty modules and tools to stores	
		13. Pass on customer complaints to colleagues in a respective geographical area	
		14. Assist colleagues with resolving field problems	
		15. Resolve conflicts and achieve smooth workflow	
		16. Follow the company policy during cross functional interaction	
4	**Maintain safe and secure work environment** **Theory Duration** (hh:mm) 10:00 **Practical Duration** (hh:mm) 10:00 **Corresponding NOS Code** ELE/N9910	**Following safety measures** 1. Comply with safety procedures followed in the company 2. Take adequate safety measures while handling hazardous materials or tools 3. Follow Electrostatic Discharge (ESD) measures for electronic components 4. Escalate matters about hazardous materials or things found in the premises 5. Use safety materials such as gloves, goggles, masks, etc. 6. adequate safety measures while on work to prevent accidents 7. Ensure zero accidents in work 8. Avoid damage of components due to negligence in ESD procedures 9. Ensure no loss for company due to safety negligence **Participating in drills and workshops** 10. Participate in regular safety drills for being prepared in the event of a fire or natural calamity 11. Help others during the drill or calamity 12. Administer basic first aid 13. Participate in company organized games and fitness sessions such as yoga, etc. 14. Develop good posture for working so that long term health problems do not arise	1. ANTISTIC MAT 2. ANTISTATI BAND 3. RUBBER SHOES

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Total Duration **Practical Duration** **76:00** **Corresponding NOS Code** **127.00**	**Unique Equipment Required:** 1. BGA soldering kit 2. Tweezers (assorted size and shapes) 3. Multimeter (Digital) 4. Anti-Static Pad 5. Software compatible with different types of handsets. 6. Screw drivers assorted size and shapes (TROX) for cell phones 7. T-6 , T-5 Screw Driver 8. Mobile Opener 9. PCB holder 10. Antistatic Wrist Band 11. SMD Rewark Station 12. Battery Booster 13. BGA Rework Station (Automatic) 14. Micro Soldering Station 15. Isoprofile 16. Smart Phone scrap 17. Interface Cables 18. Butterfly Charger 19. Battery Booster	

Grand Total Course Duration: 203 Hours 00 Minutes

(This syllabus/ curriculum has been approved by ELECTRONIC SECTOR SKILLS COUNCIL OF INDIA)

Trainer Prerequisites for Job role: Mobile Phone Hardware Repair Technician mapped to Qualification Pack: "ELE/Q8104"

Sr. No.	Area	Details
1	Job Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack "ELE/Q8104 Version 1.0".
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for Earn and keep oneself updated with the latest in the mentioned field quality and for developing others; well-organised and focused, eager to le.
3	Minimum Educational Qualifications	12 th Standard Pass with 2 Years Industry Experience.
4a	Domain Certification	Certified for Job Role: "Mobile Phone Hardware Repairing Technician" mapped to QP: "ELE 8104 Version 1.0 ". Minimum accepted score 70 %
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "SSC/Q1402". Minimum accepted score =70%
5	Experience	2 Years hard-core experience to Repair Mobile Phone in any Service Centre

Annexure: Assessment Criteria

Assessment Criteria for Mobile Phone Hardware Repair Technician	
Job Role	Mobile Phone Hardware Repair Technician
Qualification Pack :	ELE/Q8104 Version 1.0
Sector Skill Council : Electronics Sector Skill of India	Electronics Sector Skill of India

Sr. No.	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.

Sr. No.	NOS No.	NOS Name	Total Marks	Marks Allocation: Skills	Marks Allocation: Knowledge	Marks Allocation: Behavior
1	ELE/N8106 Version 1.0	**Interact with customer and perform front end repair**	100	60.	40	
2	ELE/N8107 Version 1.0	**Repair and rectify the faults in Smartphone**	100	60	40	
3	ELE/N9951 Version 1.0	**Interact with other employees**	100	60	40	
4	ELE/N9910 Version 1.0	**Maintain safe and secure work environment**	100	60	40	
	Total:		**400**	**240**	**160**	
	Percentage Weightage:			**60%**	**40%**	
	Minimum Pass% to qualify:			**70%**	**70%**	