

Model Curriculum

Handset Repair Engineer (Level II)

SECTOR: TELECOM

SUB-SECTOR: HANDSET

OCCUPATION: CUSTOMER SERVICE

REF ID: TEL/Q2201, V1.0

NSQF LEVEL: 4



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

TELECOM SECTOR SKILL COUNCIL

For the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: Handset Repair Engineer (Level II) QP No. TEL/Q 2201 NSQF Level 4

Date of issuance: April 9th, 2016

Valid up to*: April 10th, 2018

*Valid up to the next review date of the Qualification Pack or the
"Valid up to" date mentioned above (whichever is earlier)



Authorised Signatory
(Telecom Sector Skill Council)

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Handset Repair Engineer (Level II)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Handset Repair Engineer (Level II)”, in the “Telecom” Sector/Industry and aims at building the following key competencies amongst the learner

| | | | |
|---|--|----------------------------|----------------|
| Program Name | Handset Repair Engineer (Level II) | | |
| Qualification Pack Name & Reference ID. ID | TEL/Q2201, v1.0 | | |
| Version No. | 1.0 | Version Update Date | 31 – 05 – 2017 |
| Pre-requisites to Training | 10+2 / ITI / Diploma / Certification in repairing services Bachelor in Technology (Electronics, Computer Science, IT and related field) | | |
| Training Outcomes | <p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Assemble tools, spares and software: Identification of tools, its uses and procedure for fault diagnosis, testing and resolving. • Aggregate potential knowledge and skill to vouchsafe the importance of health and safety of self and equipment: Safeguard compliance of safety regulation, personal protection and clean environment for equipment. • Conduct test for repairs, effectiveness and performance of close activity: Test equipment for proper calibration, rectification and handover to correct owner • Comprehend and initiate the importance of reporting and recording: Ensure inventors, record sheet, company documents are documented for future references • Collect handsets/tablets: Ensure admittance of faulty handsets, prioritize repair activities and timeline | | |

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Handset Repair Engineer (Level II)” Qualification Pack issued by “Telecom Skill Council of India”.

| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|---|
| 1 | <p>Introduction</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding</p> <p>NOS Code NA</p> | <ul style="list-style-type: none"> Understand General Discipline in the class room (Do’s & Don’ts) Explain and outline the growth and opportunities in the Indian telecom industry List some popular mobile phone vendors in the country Explain and outline the role of a “Handset Repair Engineer (Level II)” List and outline the changes in technology of a cell phone over the years Explain and outline how a mobile phone work over a network Explain what goes on inside the handset during mobile communication List and explain common features and uses of mobile phone List and explain some popular mobile phone platforms | NA |
| 2 | <p>Perform Handset Repair (Hardware)</p> <p>Theory Duration (hh:mm) 30:00</p> <p>Practical Duration (hh:mm) 55:00</p> <p>Corresponding NOS Code TEL/N2203</p> | <ul style="list-style-type: none"> Identify and classify various electronic components that are used in mobile handsets Identify and make use of common mobile handsets repair tools Disassemble a mobile phone using the common hardware repair tools Identify and troubleshoot common handset problems Understand and follow standard safety precautions while repairing a handset Understand and follow radiation compliance standards for mobile phones in India | Handset Repair Tool-Kit (screw drivers, openers, tweezers, Ultrasonic cleaner, Multimeter, LCD separator, Soldering and de-soldering station along with consumables, Hot Air Blower, BGA Kit, DC Power Supply, LCD Tester, Antistatic Gloves, wrist straps, Handsets (various models) for repair training, electronic consumables (capacitors, resistors, microphones, speakers applicable for handset repairs) |
| 3 | <p>Perform Handset Repair (Software)</p> <p>Theory Duration (hh:mm) 30:00</p> <p>Practical Duration (hh:mm) 55:00</p> | <ul style="list-style-type: none"> Recall and demonstrate steps to reset a phone to its original factory settings Recall and demonstrate steps to download apps and set-up email accounts on a handset Outline and explain the role of firmware in a mobile handset Recall and demonstrate steps to install a new firmware | Laptop/ PC with diagnostic software, connecting cables and connectors, various types of handset to demonstrate and practice software repairs. |

| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|---|
| | Corresponding NOS Code TEL/N2204 | <ul style="list-style-type: none"> Identify and troubleshoot common software related issues in phones Create back up data from the handset Understand and follow common safety precautions to be undertaken while repairing a handset | |
| 4 | Tablet Repair (Hardware & Software) Theory Duration (hh:mm) 30:00 Practical Duration (hh:mm) 55:00 Corresponding NOS Code TEL/N2205 | <ul style="list-style-type: none"> Outline and explain a tablet and compare it with a traditional computer Recall and demonstrate steps to replace parts like battery, camera and LCD in a tablet Recall and demonstrate steps to troubleshoot common software related issues in mobile phones Recall and demonstrate steps to update the software of popular tablets and create a back up of data from tablet to a computer Understand and follow common safety precautions while repairing a tablet | Similar as SI 2 & 3. Tablets for demonstration/practical training instead of handsets |
| 5 | Reporting and Documentation Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 05:00 Corresponding NOS Code NA | <ul style="list-style-type: none"> Identify and fill-up a job-card, a daily activity report and a customer feedback form | NA |
| 6 | Soft Skills Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code NA | <ul style="list-style-type: none"> Outline and explain grooming guidelines with respect to a handset repair engineer Understand the importance of grooming Demonstrate professional grooming guidelines with respect to a handset repair engineer Identify and understand the need for effective communication as a handset repair engineer Understand and demonstrate effective process of communication at your work place Demonstrate different types of communication | NA |

| Sr. No. | Module | Key Learning Outcomes | Equipment Required |
|---------|---|--|--------------------|
| | | <ul style="list-style-type: none"> • Demonstrate effective listening skills in your day-to-day life • Outline and explain and effective time management techniques and its benefits • Identify and time wasters time wasters from you daily schedule • Demonstrate effective time management skills by using building blocks | |
| | <p>Total Duration</p> <p>Theory Duration 120:00</p> <p>Practical Duration 180:00</p> | <p>Unique Equipment Required: Laptop/PC, white board, marker, projector, first aid kit</p> | |

Grand Total Course Duration: **300Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Telecom Sector Skill Council](#))

Trainer Prerequisites for Job role: “Handset Repair Engineer (Level II)” mapped to Qualification Pack: “TEL/Q2201, v1.0”

| Sr. No. | Area | Details |
|---------|---|---|
| 1 | Description | Handset repair engineer(Level II) is responsible for performing handset repair including hardware and software components, testing the handset for adequacy post repair and maintaining inventory levels of the hardware components. |
| 2 | Personal Attributes | Personal Attributes: This job requires the individual to be analytical and be able to handle high pressure situations to successfully perform the assigned responsibilities. He should have basic written and oral communication skills and should be able to apply practical judgement to successfully perform the assigned responsibilities. |
| 3 | Minimum Educational Qualifications | 10+2 / ITI / Diploma / Certification in repairing services Bachelor in Technology (Electronics, Computer Science, IT and related field) |
| 4a | Domain Certification | Certified for Job Role: “Handset Repair Engineer (Level II)”mapped to QP: “TEL/Q2201, Version No. 1.0”. Minimum accepted score as per respective TSSC guidelines. |
| 4b | Platform Certification | Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “TEL/Q2201, Version No. 1.0”. Minimum accepted score as per respective TSSC guidelines. |
| 5 | Experience | <ul style="list-style-type: none"> • The trainer should be certified by TSSC as ‘Train the Trainer’ and Assessor and • Worked as Handset repair engineer for a minimum of 2-3 years if educational qualification is ITI/ Diploma or • Worked as Handset repair engineer for 1-2 years if educational qualification is Bachelor in Technology (B.Tech. and BE.) |

Annexure: Assessment Criteria

| | |
|-----------------------------|---|
| Assessment Criteria | |
| Job Role | Handset Repair Engineer (Level II) |
| Qualification Pack | TEL/Q2201, v1.0 |
| Sector Skill Council | Telecom |

| 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. TSSC 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 TSSC. |
| 3 | Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below) |
| 4 | Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below) |
| 5 | To pass the Qualification Pack, every trainee should score 70% overall. |
| 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. |

| Assessable Outcome | Assessment Criteria | Total Mark (200) | Out Of | Marks Allocation | | | | |
|--|---|------------------|--------|------------------|------------------|----|----|--|
| | | | | Theory | Skills Practical | | | |
| 1. TEL/N2203: Perform Handset Repair (Hardware) | PC1. Ensure faulty handsets are received from the customer facing team | | | | | | | |
| | PC2. Obtain/ note fault details as mentioned by the customer facing team and other handset specifications | | | | | | | |
| | PC3. Obtain the committed repair timelines (SLAs) | | | | | 15 | 15 | |
| | PC4. Prioritize repair activities as per guidelines | | | | | 5 | 5 | |
| | PC1. Ensure clean, neat, dust free and organized working environment | | | | | | | |
| | PC2. Determine components required based on fault diagnosis | | | | | | | |
| | PC3. Obtain materials required(such as components, equipments, testing devices and other inventory) as per organizational procedures | | | | | | | |
| | PC4. Ensure that tools, equipments and testing devices are in proper working condition and calibrated | | | | | | | |
| | PC5. Ensure compliance with lead free soldering techniques | | | | | | | |
| | PC1.Refer the company (handset manufacturer) specific technical database to identify root cause of handset fault and to determine rectification options | | | | | | | |
| | PC2. Isolate the cause of fault by conducting appropriate diagnostic test, in case details are not available. | | | | | | | |
| | PC3. determine the options to rectify the fault and confirm with supervisors, if required | | | | | | | |
| | PC4. Dismantle handset/components as per organizational guidelines/procedures | | | | | | | |
| | PC5. Ensure rectification of handset fault within the SLAs | | | | | | | |
| | PC6. Ensure timely escalation of emergency/ unresolved issues according to established procedures | | | | | | | |
| | PC7. Ensure all repairs conform to the quality targets in terms of bounce and repeat repair percentages, first time fix etc | | | | | | | |
| | PC1. Pass through ESD test before entering the facility | | | | | | | |
| | PC2. ensure that protection equipments like ESD equipments, anti-static bands, clothes and gloves are appropriately used as required | | | | | | | |

| Assessable Outcome | Assessment Criteria | Total Mark (200) | Out Of | Marks Allocation | | |
|---|---|------------------|-----------|------------------|------------------|---|
| | | | | Theory | Skills Practical | |
| | PC3. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms | | 10 | 10 | | |
| | PC4. Ensure escalation of safety incidents to relevant Authorities as per guidelines | | | | | |
| | PC1. Ensure that handset inventory in hand for repairs is tracked and accounted for appropriately as per company procedures | | 10 | 10 | | |
| | PC2. Ensure record sheets are completed accurately, as per company guidelines | | | | | |
| | PC3. Ensure all relevant parties (including supervisors, customer teams) are notified of the completion of repair activity | | | | | |
| | PC4. retain documents for specific period of time, as per company procedure | | | | | |
| Total | | 100 | 50 | 50 | | |
| 2. TEL/N2204: Perform Handset Repair (Software) | PC1. Ensure faulty handsets are received from the customer facing team | | 10 | 10 | | |
| | PC2. Obtain/ note fault details as mentioned by the customer facing team and other handset specifications | | | | | |
| | PC3. Obtain the committed repair timelines (SLAs) | | | | | |
| | PC4. Prioritize repair activities as per guidelines | | 5 | 5 | | |
| | | | | | | |
| | PC1. Undertake fault diagnosis on software components | | 15 | 7 | | 8 |
| | PC2. Interpret results and isolate fault. | | | | | |
| | PC3. Estimate repair timelines | | | | | |
| | PC4. Refer the company (handset manufacturer) specific technical database for optimal rectification options | | | | | |
| | PC5. check availability of correct software versions/modules | | | | | |
| | | | | | | |
| | PC1. Ensure clean, dust free and organized working environment | | 10 | 10 | | |
| | PC2. Ensure availability of connectors/cables | | | | | |
| | PC3. Obtain and ensure all tools are available and diagnostic equipment operational | | | | | |
| | PC4. Obtain software required as per organizational procedures | | | | | |
| PC5. Ensure that the software versions are current and ready to use | | | | | | |
| | | | | | | |

| Assessable Outcome | Assessment Criteria | Total Mark (200) | Out Of | Marks Allocation | |
|--------------------|--|------------------|--------|------------------|------------------|
| | | | | Theory | Skills Practical |
| | PC1. Carry out necessary software fault rectification (correction/ Up gradation, software replacement) | | | | |
| | PC2. Ensure rectification of handset fault within the SLAs | | | | |
| | PC3. Check handset performance to ascertain fault has been rectified. | | | | |
| | PC4. Ensure timely escalation of emergency/ unresolved issues according to established procedures | | | | |
| | PC5. Ensure all repairs conform to the quality targets | | 25 | 3 | 22 |
| | | | | | |
| | PC1. Confirm effectiveness of the repair process, by testing the handset utilizing appropriate software jigs and standard test processes | | | | |
| | PC2. Take appropriate action to rectify any deficiencies post testing | | | | |
| | PC3. Ensure that fault has been rectified without any consequential damage | | | | |
| | PC4. Handover repaired handset to QA team | | | | |
| | PC5. Ensure completion of administrative jobs like site clearance, return of test equipments | | 15 | 3 | 12 |
| | | | | | |
| | PC1. pass through ESD test before entering the facility | | | | |
| | PC2. Ensure that protection equipments like antistatic bands, clothes and gloves are appropriately used as required | | | | |
| | PC3. Ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms | | | | |
| | PC4. ensure escalation of safety incidents to relevant authorities as per guidelines | | 10 | 10 | |
| | | | | | |
| | PC1. Ensure that handset inventory in hand (for repairs) is tracked and accounted for appropriately | | | | |
| | PC2. ensure record sheets are completed accurately, as per company guidelines | | | | |
| | PC3. ensure all concerned (supervisors, QA team, customer teams) are notified of the completion of repair activity | | | | |

| Assessable Outcome | Assessment Criteria | Total Mark (200) | Out Of | Marks Allocation | |
|---|--|------------------|--------|------------------|------------------|
| | | | | Theory | Skills Practical |
| | PC4. retain documents for specific period of time, as a company procedure | | 10 | 10 | |
| | Total | | 100 | 58 | 42 |
| 3. TEL/N2205: Perform Tablet Repair (Hardware & Software) | PC1. Ensure faulty tablets are received from the customer facing team | | | | |
| | PC2. Obtain/ note fault details as mentioned by the customer facing team and other tablet specifications | | | | |
| | PC3. Obtain the committed repair timelines (SLAs) | | | | |
| | PC4. prioritize repair activities as per guidelines | | 10 | 10 | |
| | | | | | |
| | PC1. Ensure clean, neat, dust free and organized working environment | | | | |
| | PC2. Determine hardware components & software required based on fault diagnosis | | | | |
| | PC3. Obtain hardware & software required(such as components, OS, Applications, testing devices and other inventory) as per organizational procedures | | | | |
| | PC4. Ensure that tools, equipment and testing devices are in proper working condition and calibrated | | | | |
| | PC5. Ensure compliance with lead free soldering techniques | | 15 | 7 | 8 |
| | | | | | |
| | PC1. Refer the company (tablet manufacturer) specific technical database to identify root cause of tablet fault and to determine rectification options | | | | |
| | PC2. Isolate the cause of fault by conducting appropriate hardware/software diagnostic test | | 45 | 20 | 25 |
| | PC3. Determine the options to rectify the fault and confirm with supervisors, if required | | | | |
| | PC4. Dismantle tablet as per product/manufacturer guidelines | | | | |
| PC5. Ensure rectification of tablet fault within the SLAs | | | | | |

| Assessable Outcome | Assessment Criteria | Total Mark (200) | Out Of | Marks Allocation | | |
|---|--|--|------------|------------------|------------------|--|
| | | | | Theory | Skills Practical | |
| | PC6. Ensure timely escalation of emergency/ unresolved issues according to established procedures | | | | | |
| | PC7. ensure all repairs conform to the quality targets in terms of bounce and repeat repair percentages, first time fix etc | | | | | |
| | PC1. Assess test equipment is appropriately calibrated | | | | | |
| | PC2. confirm effectiveness of the repair process, by utilizing appropriate test equipment as per standard test processes | | | | | |
| | PC3. ensure that fault has been rectified without any collateral damage to tablet | | | | | |
| | PC4. handover repaired tablet to appropriate authority | | | | | |
| | PC5. ensure completion of administrative jobs like site clearance, return of test equipment. | | 10 | 10 | | |
| | PC1. Pass through ESD test before entering the facility | | | | | |
| | PC2. Ensure that protection equipment like ESD equipment, anti-static bands, clothes and gloves are appropriately used as required | | | | | |
| | PC3. ensure compliance with site risk control, OHS, environmental and quality requirements as per company's norms | | | | | |
| | PC4. ensure escalation of safety incidents to relevant authorities as per guidelines | | | | | |
| | | | 10 | 10 | | |
| | | PC1. Ensure that tablet inventory in hand for repairs is tracked and accounted for appropriately as per company procedures | | | | |
| | | PC2. Ensure record sheets are completed accurately, as per company guidelines | | | | |
| | | PC3. Ensure all relevant parties (including supervisors, customer teams) are notified of the completion of repair activity | | | | |
| PC4. Retain documents for specific period of time, as per company procedure | | | | | | |
| | | 10 | 10 | 10 | | |
| | Total | 100 | 100 | 55 | 45 | |
| | Grand Total | 300 | 300 | 163 | 137 | |
| | Percentage Weightage: | | | 40% | 60% | |
| | Minimum Pass% to qualify (aggregate): | | | 70% | | |