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MOBILE PHONE TECHNICIAN

CBT Curriculum

National Vocational Certificate Level 3

Version 1 - November 2019

NAVTTC

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GOVERNMENT OF PAKISTAN

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Introduction

Mobile technology has become one of the fastest growing technologies in the world. Today people use mobile phones to stay in touch with friends and family, to share stories and photographs in social media, and to carry out financial transactions. This widespread ownership and use of mobile phones have been creating need of trained professionals in the field of Mobile Phone Repairer. The course development will address the need of professionals who can repair Mobile Phones.

Based upon demand of the concerned industry, competency-based qualifications for Mobile Phone Technician are developed under the National Vocational Qualification Framework (NVQF) (Level 1 to 4). These qualifications mainly cover the competencies along with the related knowledge, skills and attitude which are essential for getting a job or self-employment. The qualifications are also in line with the vision of Pakistan's National Skills Strategy (NSS), National TVET Policy and National Vocational Qualification Framework (NVQF).

The National Vocational & Technical Training Commission (NAVTTC) has approved the Qualification Development Committee (QDC). The QDC consists of experts from the relevant industries from different geographical locations across Pakistan and academicians who were consulted during the development process to ensure their input and ownership of all the stakeholders. The National Competency Standards could be used as a reference document for the development of curricula to be delivered by the training institutions.

Course objective is to prepare a student/trainee who can be able to assembly, disassemble, Service & checking components of mobile Phones PCB (printed circuit broad) with using proper tools. On completion of the course he/she will be able to diagnose & repair any kind of mobile phone's software & hardware faults and can easily Read mobile phone block & layout Diagrams diagnose problems and repair it by using proper tips and techniques.

On successful completion of the course the student will be able to join as a customer support executive in any existing mobile service center & repairing Center or can establish his/her own business of mobile phones.

Purpose of the Training program:

Purpose of the training is to provide skilled manpower to improve the existing capacity of Electronics sector. This training will provide the requisite skills to the trainees to Repair Mobile Phones. It will enable the passed out to meet the challenges in the field of Mobile phone industry. Furthermore, it would augment endeavours of TVET sector to prepare such a work force of skilled labour who would be globally acceptable

The core purpose of this qualification is to produce employable mobile phone technician who could repair mobile phones according to national and international standards. In addition, this qualification will prepare unemployable youth to employee in electronics sector.

Overall objectives of Training program:

The Mobile Phone Technician qualifications level 1- 4 consists of both the theoretical and practical details required to repair a Mobile phone. The main objectives of the qualification are to prepare a student/trainee who can be able to assembly, disassemble, Service & checking components of mobile Phones PCB (printed circuit broad) with using proper tools

Competencies to be gained after completion of course:

The detail of the competency standards included in this qualification are given below:

National Vocational Certificate level 3, Mobile Phone Technician in (Electronics Sector)

1. Apply Work Health and Safety Practices (WHS)
2. Identify and Implement Workplace Policy and Procedures
3. Communicate at Workplace
4. Perform Computer Application Skills
5. Manage Personal Finances
6. Diagnose fault in Data Section of mobile phones
7. Diagnose fault in Network Section of mobile phones
8. Diagnose fault in Audio Section of mobile phones
9. Repair/ Replace Hard ware Parts of mobile phones

Job opportunities:

The Pass outs of this course may find job / employment opportunities in the following areas:

- Work as Mobile Phone Technician (Helper – Level 1)
- Work as Mobile Phone Technician (Assistant – Level 2)
- Work as Mobile Phone Technician (Technician – Level 3)
- Work as Mobile Phone Technician (Supervisor – Level 4)

Entry level of Trainees:

The entry for National Vocational Certificate level 3, in Mobile Phone Technician are given below:

Title	Entry requirements
National Vocational Certificate level 3, "Mobile Phone Technician" in (Electronics Sector)	Entry for assessment for this qualification is open. However, entry into formal training institute for this qualification is person holding National Vocational Certificate level 2, "Mobile Phone Technician" in (Electronics Sector) or middle with hands on experience.

Minimum qualification for Teachers:

- Should have completed intermediate or equivalent qualifications
- Must be a holder of G II certificate or Three years DAE in Electronics Technology.
- Must be able to communicate effectively.
- Must have at least 4 years teaching experience.

Recommended Trainer/Trainee ratio

Generally, Trainer/Trainee ratio for CBT&A courses is 1:20

Medium of instruction:

Urdu, local language.

Duration of the course:

The proposed curriculum is composed of **09** modules that will be covered in **490** learning hours. It is proposed that the course may be delivered in **Six months** period. The distribution of contact hours is given below:

Total - 420 hours.

Theory - 80 hours (16.33%) Practical - 336 hours (83.67%)

Sequence of the modules

Following is the structure of the course:

NVQF Level	Module #	Title	Category	Theory (hours)	Practical (hours)	Total (hour)	Credits hours	Total Credit Hours
3	A	Apply Work Health and Safety Practices (WHS)	Generic	**04**	**16**	**20**	**2**	**49**
	B	Identify and Implement Workplace Policy and Procedures	Generic	**02**	**08**	**10**	**1**	
	C	Communicate at Workplace	Generic	**02**	**08**	**10**	**1**	
	D	Perform Computer Application Skills	Generic	**02**	**08**	**10**	**1**	
	E	Manage Personal Finances	Generic	**02**	**08**	**10**	**1**	
	F	Diagnose fault in Data Section of mobile phones	Technical	**20**	**80**	**100**	**10**	
	G	Diagnose fault in Network Section of mobile phones	Technical	**14**	**56**	**70**	**07**	
	H	Diagnose fault in Audio Section of mobile phones	Technical	**14**	**56**	**70**	**07**	
	I	Repair/ Replace Hard ware Parts of mobile phones	Technical	**20**	**170**	**190**	**19**	
			TOTAL	**80**	**410**	**490**	**49**	
			Percentage.	**16.33%**	**83.67%**			

Overview of the Curriculum for Mobile Phone Technician (Level 3)

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of Modules
Module A: **Apply Work Health and Safety Practices (WHS)** **Aim:** This unit describes the skills to work with safety and participate in hazard assessment activities, follow emergency procedures and participate OHS practices in process	**LU1.** Implement safe work practices at work place **LU2.** Participate in hazard assessment activities at a work place **LU3.** Follow emergency procedures at workplace **LU4.** Participate in OHS consultative processes	**04**	**16**	**20**
Module B: **Identify and Implement Workplace Policy and Procedures** **Aim:** This unit describes the skills and knowledge required to develop and implement a workplace policy & procedures and to modify the policy to suit changed circumstances. It applies to individuals with managerial responsibilities who undertake work developing approaches to create, monitor and improve strategies and policies within workplaces and engage with a range of relevant stakeholders and specialists.	**LU1.** Identify workplace policy & procedures **LU2.** Implement workplace policy & procedures **LU3.** Communicate workplace policy & procedures **LU4.** Review the implementation of workplace policy & procedures	**02**	**08**	**10**

Module C: **Communicate at Workplace** **Aim:** This unit describes the performance outcomes, skills and knowledge required to develop communication skills in the workplace. It covers gathering, conveying and receiving information, along with completing assigned written information under direct supervision.	**LU-1:** Communicate within the organization **LU-2:** Communicate outside the organization **LU-3:** Communicate effectively in workgroup **LU-4:** Communicate in writing	**02**	**08**	**10**
Module D: **Perform Computer Application Skills** **Aim:** This unit describes the skills and knowledge required to use spreadsheet applications, prepare in page documents, develops familiarity with Word, Excel, Access, PowerPoint, email, and computer graphics basics. It applies to individuals who perform a range of routine tasks in the workplace using a fundamental knowledge of spreadsheets, Microsoft office and computer graphics in under direct supervision or with limited responsibility.	**LU1.** Prepare In-page documents as per required information **LU2.** Prepare Spreadsheets as per required information **LU3.** Use MS Office as per required information **LU4.** Perform computer graphics in basic applications **LU5.** Create Email account for communications	**02**	**08**	**10**
Module E: **Manage Personal Finances** **Aim:** This unit of competency describes the outcomes required to manage develop, implement and monitor a personal budget in order to plan regular savings and manage debt effectively.	**LU1.** Develop a personal budget **LU2.** Develop long term personal budget **LU3.** Identify ways to maximize future finances	**02**	**08**	**10**

Module F: **Diagnose fault in Data Section of mobile phones** **Aim:** This module covers the skills and knowledge required to Diagnose fault nature, Check Key Pad Connector, Check Key Pad IC, Check SIM Connector, Check SIM IC, Check camera, Check memory Card Connector, Check RAM, ROM, and CPU.	**LU1.** Check Key Pad Connector **LU2.** Check Key Pad IC **LU3.** Check SIM Connector **LU4.** Check SIM IC **LU5.** Check camera **LU6.** Check memory Card Connector and slot **LU7.** Check RAM, ROM and CPU	**20**	**80**	**100**
Module G: **Diagnose fault in Network Section of mobile phones** **Aim:** This module covers the skills and knowledge required to check voltage, Antenna, Network filter, Power Amplifier and Blue Tooth & Wi Fi section.	**LU1.** Check voltage **LU2.** Check Antenna **LU3.** Check Network filters **LU4.** Check Power Amplifier / PFO **LU5.** Check Bluetooth & Wi Fi section	**14**	**56**	**70**
Module H: **Diagnose fault in Audio Section of mobile phones** **Aim:** This module covers the skills and knowledge required to Check Ear Piece, Check Micro Phone, Check Speaker (Ringer), Check Hand free Section, Check Vibrator and Check Audio IC	**LU1.** Check Ear Piece **LU2.** Check Micro Phone **LU3.** Check Speaker (Ringer) **LU4.** Check Hand free Section **LU5.** Check Vibrator **LU6.** Check Audio IC	**14**	**56**	**70**

Module I: **Repair/ Replace Hard ware Parts of mobile phones** **Aim:** This module covers the skills and knowledge required to Perform chemical washing, Change Display/Glass, Replace Fix Battery, Charging Connector/Base, display Light IC, Key pad Connector, SIM Card Connector, Audio Components, Camera, Flash Light, Antenna Components, Blue Tooth and Wi Fi IC, Sensors, Mother Board and Housing.	**LU1.** Perform chemical washing **LU2.** Replace Fix Battery **LU3.** Replace Charging Connector / Base / NFC **LU4.** Replace Display / Glass **LU5.** Replace display Light IC **LU6.** Replace Key-pad / Connector **LU7.** Replace SIM Card Connector / Slot **LU8.** Replace Audio Components **LU9.** Replace Camera **LU10.** Replace Flash Light **LU11.** Replace Antenna Components **LU12.** Replace Blue-Tooth and Wi-Fi IC **LU13.** Replace Sensors. **LU14.** Repair / Replace Mother Board **LU15.** Replace Housing	**20**	**170**	**190**
	TOTAL	**80**	**410**	**490**

Module F: Diagnose fault in Data Section of mobile phones

Objective: This module covers the skills and knowledge required to Diagnose fault nature, Check Key Pad Connector, Check Key Pad IC, Check SIM Connector, Check SIM IC, Check camera, Check memory Card Connector, Check RAM, ROM, and CPU.

Duration: 100 Hours **Theory: 20 Hours** **Practice: 80 Hours**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Diagnose fault nature	• Check mobile phone for software fault • Check mobile phone for hardware fault	• Different operating system • Different parts of the Mobile Phone	Theory- 03 Hrs. Practical- 10 Hrs. Total- 13 Hrs	• Different types of Mobile • Hand outs • Different types of software and hardware and their standard operating procedures.	
LU2. Check Key Pad Connector	• Check physical condition of key pad connector for damage • Check physical condition of key pad circuit for damage • Check metallic plate tags for discontinuity	• Understanding of key-pad, key-pad connector. • Checking procedure for connectivity of metallic plate tags	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Tools kit for Mobile phone • Different types of connectors • SOP's	Class Room and workshop
LU3. Check Key Pad IC	• Check physical condition of key pad IC for damage • Check physical condition of key Pad IC prints on PCB for worn out	• Understanding of normal operating condition (heat- up, worm out) for IC and PCB	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Standard Operating procedures for ICs. • Magnifier Glass • Different Connector and batteries	Class Room and workshop

LU4. Check SIM Connector	• Check physical condition of SIM connector for damage • Check physical condition of SIM connector on PCB for connectivity	• Types of SIM connector • Understanding of SIM connector connectivity with PCB	Theory- 03 Hrs. Practical- 08 Hrs. Total- 11 Hrs.	• Multi meters • Volt Meter • Magnifier • Contact Spray All others material like cable, connectors or Jumper Wire should be readily available	Class Room and workshop
LU5. Check SIM IC	• Check physical condition of SIM IC for damage • Check physical condition of PCB SIM connector for connectivity	• Types of SIM connector IC • Understanding of SIM IC connectivity with PCB	Theory- 03 Hrs. Practical- 10 Hrs. Total- 13 Hrs.	• Different tools and equipment • Sign boards • Multi meter or volt Meter • variable DC Supply	Class Room and workshop
LU6. Check camera	• Check physical condition of camera for damage • Check camera lens and focus for proper function • Check Camera Connector for connectivity	• Types of camera & camera connectors	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Different types of software, programmers and cables. • Different types of camera lens and connectors	
LU7. Check memory Card connector and slot	• Check physical condition of memory card slot for damage • Check memory card IC for damage	• Types of memory card connector	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Memory Card slots Memory card IC	
LU8. Check RAM, ROM and CPU	• Check RAM, ROM and CPU-IC for physical damage • Check RAM, ROM and CPU-IC pin connections for continuity with PCB	• Types and uses RAM, ROM and CPU	Theory- 03 Hrs. Practical- 13 Hrs. Total- 10 Hrs.	PCB RAM	

Module G: Diagnose fault in Network Section of mobile phones

Objective: This module covers the skills and knowledge required to check voltage, Antenna, Network filter, Power Amplifier and Blue Tooth & Wi Fi section.
Duration: 70 Hours **Theory: 14 Hours** **Practice: 56 Hours**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Check voltage	• Check physical condition of network-section components for damage • Check rated Voltage at network-section with multi-meter	• Understanding of network section components • Knowledge of voltage and its measuring techniques	Theory- 04 Hrs. Practical- 10 Hrs. Total- 14 Hrs.	• Network related components. • Multi Meter	Class Room and workshop
LU2. Check Antenna	• Check antenna connection for signals • Check antenna wire for connectivity • Check antenna IC switch for networking	• Types and functions of antenna • Procedure for checking antenna connectivity • Procedure for checking antenna IC switch for connectivity	Theory- 02 Hrs. Practical- 08 Hrs. Total- 10 Hrs.	• Multi meter • Power supply • Antenna switch and IC	Class Room and workshop
LU3. Check Network filters	• Check burn out components of Rx/Tx filters • Check filter components with LCR meter / Oscilloscope for proper function • Check Power Frequency Oscillator for network signals	• Types and functions of filters, frequency crystals (RF Crystals) • Techniques for checking of filters with Oscilloscope/LCR meter	Theory- 03 Hrs. Practical- 14 Hrs. Total- 17 Hrs.	• Multi meter • Power supply Antenna switch and IC	Class Room and workshop

LU4. Check Power Amplifier / PFO	• Check burn out components at amplifier section • Check burn out components of Power Frequency Oscillator (PFO) / Power Amplifier for rated output • Check Baseband IC for damage • Check Voltage Controlled Oscillator (VCO) for rated signals	• Types and functions of amplifier • Function and types of oscillator	Theory- 03 Hrs. Practical- 12 Hrs. Total- 15 Hrs.	• Different tools and equipment • Screw drivers • Multi meters • Connectors • Different types of components (PFO, VCO)	Class Room and workshop
LU5. Check Bluetooth & Wi Fi section	• Check Bluetooth and Wifi antenna for signals • Check Bluetooth and Wifi connectors for continuity • Check Bluetooth and Wifi circuit section for signals	• Functions of Bluetooth/Wi-Fi • Knowledge of Bluetooth and Wi-Fi signals range	Theory- 02 Hrs. Practical- 12 Hrs. Total- 14 Hrs.	• Different tools and equipment • Screw drivers • Multi meters Connectors	

Module H: Diagnose fault in Audio Section of mobile phones

Objective: This module covers the skills and knowledge required to Check Ear Piece, Check Micro Phone, Check Speaker (Ringer), Check Hand free Section, Check Vibrator and Check Audio IC

Duration: 70 Hours **Theory: 14 Hours** **Practice: 56 Hours**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Check Ear Piece	• Check dust for blockage • Check Ear piece terminals for continuity • Check Ear piece coil for rated resistance	• Types and functions of earpiece • Knowledge of cleaning techniques for earpiece • Knowledge to find rated resistance of earpiece using multi-meter as per specification • Knowledge to check continuity of earpiece terminals using multi-meter.	Theory- 02 Hrs. Practical-10 Hrs. Total- 12 Hrs.	• Different tools and equipment • Screw drivers • Multi meters • Connectors ifferent ear piece.	Class Room and workshop

LU2. Check Micro Phone	• Check dust for blockage • Check Micro Phone terminals for continuity • Check Micro Phone for rated resistance	• Types and functions of microphone. • Knowledge to check continuity of micro phone terminals using multi-meter • Knowledge to find rated resistance of Micro phone using multi-meter as per specification	Theory- 02 Hrs. Practical-10 Hrs. Total- 12 Hrs.	• Contact Spray • Multi meter • Log book • Voltage sources • Different types of connectors	
LU3. Check Speaker (Ringer)	• Check dust for blockage • Check Speaker terminals for continuity • Check Speaker coil for rated resistance	• Types and functions of speaker • Techniques for speaker Cleaning • Knowledge to check continuity of speaker (Ringer) terminals using multi-meter • Knowledge to find rated resistance of speaker (Ringer) coil using multi-meter as per specification	Theory- 02 Hrs. Practical-10 Hrs. Total- 12 Hrs.	• Multi meter • Log book • Voltage sources • Digitizer strips • Different types of speakers and coils	

LU4. Check Hands free Section	• Check dust for blockage • Check Hands free terminals for continuity	• Types and functions of hands free • Techniques for Cleaning hands free section • Knowledge to check continuity of Hands-free terminals using multi-meter	Theory-03 Hrs. Practical- 08 Hrs. Total-11 Hrs.	• Multi meter • Log book • Voltage sources • Digitizer strips • Different types of Hands free.	
LU5. Check Vibrator	• Check Vibrator connectivity with PCB • Check Vibrator coil for rated resistance • Check connectivity between Vibrator and Vibrator IC	• Types and functions of vibrator • Knowledge to find rated resistance of Vibrator using multi-meter as per specification • Knowledge to check continuity between vibrator and vibrator IC using multi-meter	Theory- 02 Hrs. Practical- 08 Hrs. Total- 10 Hrs.	• Multi meter • Log book • Voltage sources • Digitizer strips • Different types of Hands free.	
LU6. Check Audio IC	• Check Audio IC for Physical damage • Check audio-section components for burn out • Check audio IC points connectivity with PCB	• Types and functions of audio IC • Types of physical damages of audio IC • Knowledge to check continuity of audio IC points with PCB using multi-meter	Theory- 03 Hrs. Practical- 10 Hrs. Total- 13 Hrs.	• Multi meter • Log book • Voltage sources • Digitizer strips • Different types components (audio IC, PCB).	

Module I: Repair/ Replace Hard ware Parts of mobile phones

Objective: This module covers the skills and knowledge required to Perform chemical washing, Change Display/Glass ,Replace Fix Battery, Charging Connector/Base, , display Light IC, Key pad Connector, SIM Card Connector, Audio Components, Camera, Flash Light, Antenna Components, Blue Tooth and Wi Fi IC, Sensors, Mother Board and Housing.

Duration: 190 Hours **Theory: 20 Hours** **Practice: 170 Hours**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Perform chemical washing	• Arrange tools for cleaning and washing • Select chemicals for washing • Clean PCB from dust and moisture • Cover microphone, sensors and remove cameras before washing • Wash PCB and its components • Dry PCB and its components	• Knowledge of cleaning tools • Knowledge and types of chemicals use for washing/cleaning • Techniques for cleaning/washing PCB and its components • Drying techniques for PCB and its components	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Carbon tetrachloride chemical (CTC) • Thinner • Petrol • WD-40 • Cleaning cloth • Cotton	Class Room and workshop
LU2. Replace Fixed Battery	• Disassemble mobile phone without damage • Replace fix Battery Connectors if required • Replace fix battery as per requirement	• Types of fixed batteries • Techniques of safe replacement of mobile phone fixed battery	Theory- 01 Hr. Practical- 10 Hrs. Total- 11 Hrs.	• Adhesive removing liquid/spray • Multimeter	Class Room and workshop

LU3. Replace Charging Connector / Base / NFC	• Remove existing charging port / base without damage of PCB • Replace new charging port / base as per standard • Replace Near Field Communication (NFC) antenna and its connectors • Check rated voltage as per specification	• Types of charging ports • Techniques for replacement of charging ports • Knowledge of near field communication (NFC) antenna • Techniques for replacement of near field communication (NFC) antenna and its connectors	Theory- 02 Hrs. Practical- 10 Hrs. Total- 12 Hrs.	• Charging base/port • Soldering wire • Flux paste • Thinner • NFC antenna • CTC • Cleaning cloth	Class Room and workshop
LU4. Replace Display / Glass	• Arrange tools and equipment as per requirement • Remove glass without damaging display • Remove display • Install display / glass as per standard	• Types of display and glass • Techniques for safe removal of glass /display using hot plate separator • Techniques for safe installation of display/glass	Theory- 01 Hr. Practical- 10 Hrs. Total- 11 Hrs.	• Display • Glass • Polarizer paper • OCA paper • Ultraviolet (UV) gum • CTC cleaner • Double tap • Adhesive glue • Cleaning cloth	Class Room and workshop
LU5. Replace display Light IC	• Remove faulty display light IC without damaging other components on PCB • Install new display light IC as per standard	• Types and function of display light IC • Techniques for safe removal of display light IC using heat gun and soldering station • Techniques for safe installation of display light IC using heat gun and soldering station	Theory- 01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Soldering wire • Display light IC • Flux paste • Jumper wire • CTC cleaner • heat resistance tape • Cleaning cloth • Solder paste	

LU6. Replace Key-pad / Connector	• Remove key-pad / connector / ribbon as per requirement • Install new key-pad / connector / ribbon as per standard	• Types of Key-pad connector • Safe replacement techniques for key-pad connector/ribbon	Theory-01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Soldering wire • Key-pad connectors • Flux paste • CTC cleaner • Cleaning cloth	
LU7. Replace SIM Card Connector / Slot	• Remove Sim Card slot / Connector as per requirement • Install new Sim Card slot / Connector as per standard	• Types of SIM card slot • Safe replacement techniques for SIM card slot using SMD work station	Theory- 01 Hr. Practical- 10 Hrs. Total- 11 Hrs.	• Soldering wire • SIM card connectors • Flux paste • CTC cleaner • Heat resistance tape • Cleaning cloth	
LU8. Replace Audio Components	• Remove Ear Piece / Microphone / Ringer / Head phone Jack / Vibrator as per requirement • Install new /Ear Piece / Microphone / Ringer / Head phone Jack / Vibrator as per standard	• Types of Audio components • Safe replacement techniques for audio components.	Theory- 01 Hr. Practical- 10 Hrs. Total- 11 Hrs.	• Soldering wire • Ringer • Head phones jack • Vibrator • Micro phone • Ear piece • Flux paste • CTC cleaner • Heat resistance tape • Cleaning cloth	
LU9. Replace Camera	• Remove Camera as per requirement • Remove camera-connector if required • Install camera / connector as per standard	• Types of camera • Safe replacement techniques for camera module.	Theory- 01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Soldering wire • Cameras • Camera • CTC cleaner • Heat resistance tape • Flux paste • Cleaning cloth	

LU10. Replace Flash Light	• Remove Flash light as per requirement • Install new flash light as per standard	• Types of flash light • Safe replacement techniques for flash light	Theory- 01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Soldering wire • Flash light • CTC cleaner • Heat resistance tape • Flux paste • Cleaning cloth	
LU11. Replace Antenna Components	• Remove Antenna / Cable / Connector as per requirement • Install Antenna / Cable / Connector as per standard	• Types and functions of antenna • Safe replacement techniques for antenna and its components	Theory- 01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Soldering wire • Antenna • Antenna cables • Antenna connector • CTC cleaner • Heat resistance tape • Flux paste • Cleaning cloth	
LU12. Replace Blue-Tooth and Wi-Fi IC	• Remove Blue-Tooth / Wi-Fi IC as per requirement • Install Blue-Tooth / Wi-Fi IC as per standard	• Types of Bluetooth and Wi-Fi IC • Safe replacement techniques for Bluetooth and Wi-Fi IC	Theory- 02 Hrs. Practical- 14 Hrs. Total- 16 Hrs.	• Soldering wire • Blue-tooth/Wi-Fi IC • CTC cleaner • Heat resistance tape • Flux paste • Cleaning cloth	
LU13. Replace Sensors.	• Remove light sensor / sound sensor / proximity sensor / Finger Print sensor as per requirement • Install light sensor / sound sensor / proximity sensor / Finger Print sensor as per standard	• Different types and functions of sensors • Safe replacement techniques for different type of sensors	Theory- 02 Hrs. Practical- 12 Hrs. Total- 14 Hrs.	• Soldering wire • Different types of sensor • CTC cleaner • Heat resistance tape • Flux paste • Cleaning cloth	

LU14. Repair / Replace Mother Board	• Repair Motherboard for connectivity • Replace new Motherboard as per standard if required	• Types of motherboard • Safe repair/replacement techniques for motherboard	Theory- 02 Hrs. Practical- 12 Hrs. Total- 14 Hrs.	• Soldering wire • Thinner • Petrol • Jumper wire • WD-40 • Mother board • CTC cleaner • Heat resistance tape • Flux paste • Double tape • Cleaning cloth	
LU15. Replace Housing	• Remove Housing as per requirement • Install new Housing as per standard	• Types of housing • Safe replacement techniques of housing	Theory- 01 Hr. Practical- 12 Hrs. Total- 13 Hrs.	• Housing • CTC cleaner • Double tape • Adhesive removing liquid • Glue • Cleaning cloth	

List of Personal Protective Equipment

(FOR A CLASS OF 25 STUDENTS)

Name of Trade	**Mobile Phone Technician**	
Duration of Course	**12 Months**	
Sr. #	Description	Quantity
1.	Safety gloves,	30
2.	Appropriate safety glasses,	30
3.	Breathing apparatus,	30
4.	Fire extinguishers,	30
5.	Fire blankets,	30
6.	Respirators, masks,	30
7.	Fire hoses,	04

Complete List of Tools, Equipment, Machines and Consumables

Tools

S#	Description	Quantity
1.	Precision screw driver	25
2.	Screw driver kit	25
3.	Tweezers	25
4.	Brushes	25
5.	Blade cutter	25
6.	Nose cutter	25

7.	Point cutter	25
8.	Cutter plier	25
9.	Long Nose plier	25
10.	PCB holder	25
11.	Hard tweezers	25
12.	Magnifying glass	25
13.	Opener's kit	25
14.	Suction openers	25
15.	Magnifying lamp	25
16.	Wrist wire	25
17.	Clipping tools(clips)	25
18.	seizer	25
19.	Steel wire	25
20.	Rubber pads	25
21.	Glass openers	25

Equipment for Hardware

S#	Description	Quantity
1.	Digital Multi meter	25
2.	Oscilloscope	5
3.	Soldering Iron	25
4.	Soldering Station/SMD work station	25
5.	Digital variable Power supply	5
6.	B. G. A. Kit	25
7.	Ultrasonic PCB Cleaner	5

Equipment for Display repair

S#	Description	Quantity
1.	Hot gun	25
2.	Smoke Absorber	5
3.	Hot air blower	5
4.	Hot plate display separator	5
5.	Freezer for separation of OLED	5
6.	Flex binding machine	5
7.	Mini electric grinder kit (EMC)	5
8.	UV lamp	5
9.	Glass laminating machine	5
10.	De-bubbler machine	5
11.	PCB Owen	5

Equipment for Software

S#	Description	Quantity
1.	Octopus Box (with cable Samsung + LG)	5
2.	J Tag	5
3.	EFT Dongle	5
4.	CM2 Dongle	5
5.	Sigma Key	5
6.	ATF Dongle	5
7.	ZXW (Hardware) Schematic diagram Dongle	5

Consumables

S#	Description	Quantity
1.	Soldering wire	25 rolls
2.	Gloves	25 Nos
3.	Jumper wire	
4.	IC Paste	
5.	Solder paste	
6.	Cleaning sponge	25
7.	Paste flux	
8.	Cleaning cloth	
9.	Chemical for washing mobile phone	
10.	UV Gum	
11.	Double tape	
12.	Heat resistance tape	
13.	Adhesive Glue	
14.	Thinner	
15.	CTC	
16.	Shiner	
17.	Rubber adhesive glue	
18.	WD-40	
19.	Thinner	
20.	Cotton	

List of Stationary

S#	Description	Quantity
1.	Handbooks	5
2.	Design books	5
3.	Pencils	30
4.	Rubber	30
5.	Sharpeners	30
6.	Paper Cutter	5
7.	Seizers	5
8.	Colors	5 each color (Read, Green, Yellow, Blue, white and Black)
9.	White charts	50 Nos
10.	Brown sheets	100 Nos
11.	White board markers	5 Dozen
12.	Permanent markers	2 Dozen
13.	File cover and files	50 Nos.

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