Co-funded by the European Union

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Norwegian Embassy
Islamabad

MOBILE PHONE TECHNICIAN

CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November 2019

NAVTTC

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Published by
National Vocational and Technical Training Commission
Government of Pakistan

Headquarter
Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible
Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design
SAP Communications

Photo Credits
TVET Sector Support Programme

This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version
November, 2019
Islamabad, Pakistan

MOBILE PHONE TECHNICIAN

CBT Curriculum

National Vocational Certificate Level 2

Version 1 - November 2019

GOVERNMENT OF PAKISTAN

Table of Contents

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 1,Mobile Phone Technician(Electronics Sector)

1. Comply with Personal Health and Safety Guidelines
2. Communicate the Workplace Policy and Procedure
3. Perform Basic Communication (Specific)
4. Perform Basic Computer Application (Specific)
5. Identify Incoming Quality Problems with Mobile Phones
6. Diagnose fault in Power Section of mobile phones
7. Diagnose fault in Display Panel 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 2, in Mobile Phone Technician are given below:

Title	Entry requirements
National Vocational Certificate level 2, "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 1, "Mobile Phone Technician" in (Electronics Sector) or middle.

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 **07** modules that will be covered in **420** learning hours. It is proposed that the course may be delivered in **Three months** period. The distribution of contact hours is given below:

Total - 420 hours.
Theory - 84 hours (20%)
Practical - 336 hours (80%)

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
2	A	Comply with Personal Health and Safety Guidelines	Generic	**06**	**24**	**30**	**3**	**42**
	B	Communicate the Workplace Policy and Procedure	Functional	**04**	**16**	**20**	**2**	
	C	Perform Basic Communication (Specific)	Technical	**06**	**24**	**30**	**3**	
	D	Perform Basic Computer Application (Specific)	Generic	**08**	**32**	**40**	**4**	
	E	Identify Incoming Quality Problems with Mobile Phones	Technical	**20**	**80**	**100**	**10**	
	F	Diagnose fault in Power Section of mobile phones	Technical	**20**	**80**	**100**	**10**	
	G	Diagnose fault in Display Panel of mobile phones	Technical	**20**	**80**	**100**	**10**	
			Total	**84**	**336**	**420**	**42**	
			Percentage.	**20%**	**80%**			

Overview of the Curriculum for Mobile Phone Technician (Level 2)

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of Modules
Module A: **Comply Personal Health and Safety Guidelines** **Aim:** This Competency Standard identifies the competencies required to protect/apply occupational Safety, Health and Environment at workplace according to the industry's approved guidelines, procedures and interpret environmental rules/regulations. Trainee will be expected to identify and use Personal Protective Equipment (PPE) according to the work place requirements. The underpinning knowledge regarding Observe Occupational Safety and Health (OSH) will be sufficient to provide the basis for the job at workplace.	**LU1:** Identify Personal Hazard at work place **LU2:** Apply personal protective and safety equipment (PPE) **LU3:** Comply with occupational safety and health (OSH) **LU4:** Dispose of hazardous waste/materials from the designated area	**06**	**24**	**30**
Module B: **Communicate the Workplace Policy and Procedure** **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.	**LU1.** Identify workplace communication procedures **LU2.** Communicate at workplace **LU3.** Draft Written Information **LU4.** Review Documents	**04**	**16**	**20**

Module C: **Perform Basic Communication (Specific)** **Aim:** This unit describes the skills and knowledge required to assist in the development of communication competence by providing information regarding different forms of communication and their appropriate use.	**LU1.** Communicate in a team to achieve intended outcomes **LU2.** Follow Supervisor's instructions as per organizational SOPs **LU3.** Develop Generic communication skills at workplace `	**06**	**24**	**30**
Module D: **Perform Basic Computer Application (Specific)** **Aim:** This unit describes the skills and knowledge required to use spreadsheet to prepare a page of document, develops familiarity with Word, Excel, email, and computer graphics basics.	**LU1.** Create Word Documents **LU2.** Create Excel Documents **LU3.** Use internet for Browsing	**08**	**32**	**40**
Module E: **Identify Incoming Quality problems with mobile phones** **Aim:** This module covers the skills and knowledge required to check physical condition of Mobile Phone, Check Battery of Phone, Check Phone Charger, Check Hardware fault, Check basic Software fault and Document faults	**LU1.** Check physical condition of Mobile Phone **LU2.** Take History of faulty Phone **LU3.** Check Battery of phone **LU4.** Check Phone Charger **LU5.** Check basic Hardware fault **LU6.** Check basic Software fault. **LU7.** Prepare invoice	**20**	**80**	**100**

Module F: **Diagnose fault in Power Section of mobile phones** **Aim:** This module covers the skills and knowledge required to disassemble Phone set, check supply Voltage, ON, OFF Switch, Charging Section, and power supply section of the mobile phone	**LU1.** Disassemble Phone set **LU2.** Check supply Voltage **LU3.** Check ON, OFF Switch **LU4.** Check Charging Section **LU5.** Check power supply section	**20**	**80**	**100**
Module G: **Diagnose fault in Display Panel of mobile phones** **Aim:** This module covers the skills and knowledge required to check display Glass, LCD Light Panel, Digitizer/soft keys, LCD Connector and display Strip of mobile phone.	**LU1.** Check display Glass **LU2.** Check LCD Light Panel **LU3.** Check Digitizer/Soft Keys **LU4.** Check display Connector **LU5.** Check display Strip	**20**	**80**	**100**
	TOTAL	**84**	**336**	**420**

Module E: Identify Incoming Quality Problems with Mobile Phones

Objective: This module covers the skills and knowledge required to check physical condition of Mobile Phone, Check Battery of Phone, Check Phone Charger, Check Basic Hardware fault, Check basic Software fault, Prepare Invoice,

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

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Check physical condition of Mobile Phone	• Inspect casing of mobile phone for physical damage • Detect cracks of mobile phone screen • Check Pre-scratches on mobile unit and record	• Incoming Quality Control. • Types of mobile phones • Types of display screens	Theory- 03 Hrs. Practical-15 Hrs. Total- 18 Hrs.	○ Different types of Mobile ○ Hand outs	Class Room and workshop
LU2. Take History of Mobile Phone	**P1.** Collect information of fault from customer **P2**. Collect customer personal contacts **P3**. Prepare estimated cost and take consent from customer	• Types of Mobiles • Different sections of Mobile Phone • Record Register	Theory- 02 Hrs. Practical-07 Hrs. Total- 09 Hrs	• History book • Receipt	Class Room
LU3. Check Battery of Phone	• Check physical condition of battery for swollen • Check charge status of the battery	• Types of Batteries and fixing Techniques	Theory- 03 Hrs. Practical-15 Hrs. Total-18 Hrs.	• Battery Charger	Class Room and workshop

	• Inspect battery connectors and Terminals for connectivity	• Knowledge of battery connectors and terminals • Knowledge of batteries specifications		• Different types of Connector and batteries	
LU4. Check Phone Charger	• Check output voltage of the charger by voltmeter • Check continuity of the charger's cable	• Types and specification of different chargers • Know about testing techniques of charger.	Theory – 03 Hrs. Practical-10 Hrs. Total – 10 Hrs.	• Multi meters • Volt Meter All others material like cable, connectors or Jumper Wire should be readily available	Class Room and workshop
LU5. Check basic Hardware fault	• Arrange tools and equipment as per requirement • Check power ON-Off status • Check charging status of the charging base	• Identification of tools and equipment • Knowledge of DC power supply • Checking procedure of charging base.	Theory – 03 Hrs. Practical –15 Hrs. Total – 21 Hrs.	• Different tools and equipment • Sign boards • Multi meter or volt Meter • variable DC Supply	Class Room and workshop

LU6. Check basic Software fault	• Check mobile for corrupt software • Check mobile for abnormal restart • Check freezing on logo • Check specific voltage on power supply	• Testing techniques of basic software fault.	Theory – 03 Hrs. Practical –15 Hrs. Total – 21 Hrs.	• Hand out of Different types of software, programmers and cables.	Class Room and workshop
LU7. Prepare invoice	• Document list of faults with incoming quality • Estimate material cost and service charges • Verify invoice from the customer	• Knowledge of standard operating Procedure (SOP) of the firm	Theory – 03 Hrs. Practical –06 Hrs. Total – 09 Hrs.		Class Room and workshop

Module F: Diagnose fault in Power Section of mobile phones

Objective: This module covers the skills and knowledge required to disassemble Phone set, check supply Voltage, Check ON, OFF Switch, Check Charging Section, and power supply section of the mobile phone

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

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Disassemble Phone set	• Select tools and equipment as per requirement • Remove back cover without damaging the phone • Remove screen without damaging	• Procedure of dissembling and assembling • Disassembling/Assembling techniques	Theory- 03 Hrs. Practical- 14 Hrs. Total- 17 Hrs.	• Screen remover tools and mobile phone kit of screw driver.	Class Room and workshop
LU2. Check supply Voltage	• Check specific Voltage from power supply • Check for short circuit in the power supply section	• Knowledge about rated voltage of power supply. • Symptoms of short circuiting	Theory- 04 Hrs. Practical-15 Hrs. Total- 19 Hrs.	• Multi meter • Power supply	Class Room and workshop
LU3. Check ON, OFF Switch	• Check power switch for faulty contacts /connector • Check On- Off switch flex (ribbon cable) connectivity	• Types of switches/flex cables and connectors • Checking procedure Of ON/OFF switch/flex cables and connectors	Theory- 03 Hrs. Practical-15 Hrs. Total- 18 Hrs.	• Different tools and equipment • Connectors • Contact spray • Multi meter	Class Room and workshop

	• Check power value on circuit through multi meter	• Procedure for checking connectivity between power switch and mother board			
LU4. Check Charging Section	• Check charging port for connectivity • Check charging flex cable for connectivity • Check battery terminal for voltage	• Procedure for checking connectivity of charging port/flex cable connector and battery terminal	Theory- 05 Hrs. Practical-18 Hrs. Total- 23 Hrs.	• Different tools and equipment • Screw drivers • Multi meters Connectors	Class Room and workshop
LU5. Check power supply section	• Check physical condition of power IC for damage • Check power section components for rated voltage	• Knowledge of IC and its types • Checking procedure of power section and its components for rated voltage with oscilloscope.	Theory- 05 Hrs. Practical-18 Hrs. Total- 23 Hrs.	• Different tools and equipment • Screw drivers • Multi meters Connectors	Class Room and workshop

Module G: Diagnose fault in Display Panel of mobile phones

Objective: This module covers the skills and knowledge required to check display Glass, LCD Light Panel, Digitizer/soft keys, LCD Connector and display Strip of mobile phone.

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

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Check display Glass	• Remove glass protector from display glass without damage the screen • Check physical condition of display glass for damage	• Types of display glass protector • Knowledge of display glass • Removal techniques of glass from display	Theory- 04 Hrs. Practical- 16 Hrs. Total- 20 Hrs.	• Different tools and equipment • Screw drivers • Multi meters • Connectors Glass and solution of glass.	Class Room and workshop
LU2. Check LCD Light Panel	• Check LCD light panel for liquid damage • Check LCD light panel for fused lights	• Knowledge of LCD light panel • Symptoms of liquid damage	Theory- 04 Hrs. Practical- 16 Hrs. Total- 20 Hrs.	• Voltage sources • Different types of LCD	Class Room and workshop
LU3. Check Digitizer/Soft Keys	• Check physical condition of digitizer for damage • Check digitizer strip for connectivity	• Knowledge of Digitizer strips and connectors • Types and uses of digitizers	Theory- 04 Hrs. Practical- 16 Hrs. Total- 20 Hrs.	• Voltage sources • Digitizer strips • Polarizer paper	Class Room and workshop

	• Check polarizer paper for spots • Check soft keys for continuity	• Knowledge of polarizer paper and soft keys		• Soft keys	
LU4. Check display Connector	• Check input connectors for connectivity • Check output connectors for connectivity	• Types of display connectors	Theory- 04 Hrs. Practical- 16 Hrs. Total- 20 Hrs.	• Learner guide • Multi meter • Log book • Voltage sources • Digitizer strips • Polarizer paper • Soft keys • Presentation	Class Room and workshop
LU5. Check display Strip	• Check physical condition of display strip for connectivity • Check display strip components for connectivity	• Knowledge of Display strips and its components	Theory- 04 Hrs. Practical- 16 Hrs. Total- 20 Hrs.	• Multi meter • Voltage sources • Digitizer strips • Polarizer paper Soft keys	Class Room and workshop

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.

National Vocational and Technical Training Commission (NAVTTC)

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
+92 51 9044 322
+92 51 9044 322
info@navttc.org
www.navttc.org