

REPAIR AND MAINTENANCE OF MOBILE CELL PHONES



Acknowledgements

This course was drafted at a Commonwealth of Learning workshop in Nairobi, Kenya in October 2013. The participants worked with Professor Fred Lockwood to test the rapid course development model.

We appreciate all the course authors who provided relevant information during the design and development of this course. In particular, we want to thank the following:

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|---------------------|--------------------------------------------|
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| 2. Muasya Douglas | Coast Institute of Technology: Lead Author |
| 3. Mugure Tabitha | Thika Technical Training Institute |
| 4. Njoroge Stella | Masai Technical Training Institute |
| 5. Ochuma Johnstone | Kenya Institute of Curriculum Development |
| 6. Wanjala Antony | Coast Institute of Technology |

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Abbreviations and Acronyms

3G:	3Rd Generation in Mobile Telephony
AC:	Alternate Current.
BGA:	Ball Grid Array
BSI:	Battery Status Indicator
CDMA:	Code Division Multiple Access
CPU:	Central Processing Unit
DCT:	Digital Core Technology
DC:	Direct Current
ESD:	Electro Static Discharge
FM:	Frequency Modulation
GSM:	Global System For Mobile phones
IC:	Integrated Circuit
IMEI:	The International Mobile Station Equipment Identity
LCD:	Liquid Crystal Device
LED:	Light Emitting Diode
MIC:	Microphone
PDA:	Personal Digital Assistance
PCB:	Printed Circuit Board
PFO:	Power Frequency Oscillator
RAM:	Random Access Memory
RTC:	Real Time Clock
SMD:	Surface Mount Device
SIM:	Subscriber identification module

Mobile Cell Phone Repair and Maintenance

Introduction

Welcome to this course on mobile cell phone repair and maintenance. A mobile cell phone is a hand held mobile device that can perform several communication functions. 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. Indeed, according to a World Bank policy research paper of 2012, 93% of Kenyans owned a mobile phone by the end of 2011.

This widespread ownership and use of mobile phones has created a need for professionals who can repair and service mobile phones. This course has been developed to address that need. The course targets people who would like to start and run a mobile repair and servicing business. By the end of this course you should be able to disassemble and assemble a mobile phone, diagnose the problem, service and repair a mobile phone with the help of proper tools and instruments.

This course is provided through distance learning and we trust that you will find the material useful both for studying and as future reference. We welcome your feedback on any issue relating to this course and wish you all the best. Happy Learning!

Learning Outcomes

Upon completion of this course you will be able to:

- Identify different types of mobile cell phones
- Recognise potential hazards in the repair of mobile cell phones
- Identify the parts of a mobile cell phone
- Use the correct hardware tools to repair mobile cell phones
- Assemble and disassembly a mobile cell phone
- Identify mobile cell phone faults and solve them.



Topic 1: _____

Types of Mobile Phones

Before we discuss the types of mobile phones, let us first look at the meaning of a mobile phone.

What is a mobile phone?

A mobile phone is a handheld device that allows you to make and receive telephone calls while you move around a wide geographical area. A mobile phone also supports several other functions, such as text messaging, email and internet access, photography, money transfer, banking, and so on.

Types of Mobile Phones

There are many different types of mobile phones available in the market. Which ones do you know? Take 2 minutes to think about it and then complete the following activity.



Activity 1:

Types of mobile phones (3 minutes)

List at least 4 types of mobile phones in the space provided below.

1. _____
2. _____
3. _____
4. _____

Well done! We believe your answer included the following types of mobile phones:

- Bar
- Brick
- Touch screen
- Flip
- Slider
- Swivel watch
- Taco
- Mixed flip and swivel

Well, there is no general rule used to classify mobile cell phones. However, in most cases they are classified on the basis of their form factor.

What is a form factor?

A **form factor** refers to the size, style, and shape of a mobile phone, as well as to the layout and position of the phone's major components. There are four major forms of mobile phones, namely:

- The bar phone,
- The touch screen phone
- The flip phone, and
- The slider phone.

Let us look at each form in further detail starting with the bar phone.

The Bar Phone

A bar phone is also known as the slab, block, or slate phone. It takes the shape of a cuboid, usually with rounded corners and/or edges. The name is derived from the rough resemblance to a candy bar in size and shape, see Figure 1 below.



Figure 1: A bar phone



Figure 2: Touch screen phone

The Touch screen Phone

A touch screen, or slate phone is a subset of the bar form. Like the tablet computer, a touchscreen phone has minimal buttons and instead relies on an electronic visual display known as a touch screen. It also has an onscreen QWERTY keyboard.

QWERTY refers to the arrangement of keys or buttons on an English computer keyboard.

Figure 2 shows a picture of a touchscreen phone.

The Flip Phone

A flip or clamshell phone consists of two or more sections that are connected by hinges, as shown in figure 3. The hinges allow the phone to flip open and fold to close in order to become more compact. When flipped open, the phone's speaker and microphone are placed closer to the operator's ear and mouth, thereby improving usability.



Figure 3: A flip phone



Figure 4: A slider phone

The Slider Phone

A slider or slide phone is composed of usually two, but sometimes more, sections that slide past each other on rails. It usually has a display segment which houses the speaker and screen, while the segment that slides in and out contains the keypad or keyboard. The sliding form factor allows the owner to take advantage of a full key board without sacrificing portability. Figure 4 shows a picture of a slider phone.

We hope you now understand the various types of mobile phones. Let us now look at the potential hazards that are associated the repair of a mobile phone.



Topic 2: _____

Potential Hazards Associated with Mobile Phone Repair

Your physical well being is important not only to yourself, but also to others. Therefore, as you embark on mobile phone repair, you should be aware of all the potential hazards and how to prevent them.

What is a hazard?

A hazard is anything that has the potential to cause harm to yourself or those around you. Before you learn the different types of hazards, let's start by defining some of the terms associated with hazards. Write down the meaning of the terms in the following activity.



Activity 2:

Meaning of terms associated with hazards (5minutes)

Write the meaning of the terms in the left hand column

Term	Meaning
Flammable	
Corrosive	
Toxic	
Fumes	

Compare your answers with those given at the end of this course.

Let us now look at the various types of hazards that you could encounter when repairing or maintaining a mobile phone?

There are quite a number of potential hazards that one can encounter when servicing or repairing a mobile phone. These are listed in Table 1 together with the preventive actions that you could take to avoid them.

Table 1: Potential hazards during mobile phone repair and their prevention

Hazard	Preventive Actions
Burns	Use of well insulated tools Use of gloves Keeping the soldering iron in the right place Unplugging equipment when not in use
Pricks by sharp objects	Appropriate storage of equipment Proper disposal of sharp objects Use of appropriate tools and equipment
Environmental pollution	Proper disposal of electronic wastes
Trailing electrical cables	Make sure electrical equipment is unplugged while not in use Safe storage of cables
Falls	Keep all tools, bins etc. in the right place

Having looked at potential hazards and how to protect ourselves during mobile phone repair, let us now consider the parts of a mobile phone.