

MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI - 51

1	Name of Course	Certificate Course In Maintenance of Communication Devices (301113)																																								
2	Max.Nos. of Student	25 Students																																								
3	Duration	6 Month																																								
4	Type	Part Time																																								
5	Nos Of Days / Week	6 Days																																								
6	Nos Of Hours /Days	4 Hrs																																								
7	Space Required	Theory Class Room – 200 sqft Workshop – 300 sqft																																								
8	Entry Qualification	VIII th passed																																								
9	Objective Of Syllabus/ introduction	Candidate will be able to repair 2G and 3G cell phones.																																								
10	Employment Opportunity	Self Employment / May get job in Establishment																																								
11	Teacher’s Qualification	Diploma in eloelectronics , I.T.I. N.C.V.T. (Electronics)																																								
12	Training System	<div>Training System Per Week</div> <table><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>6 Hours</td><td>18 Hours</td><td>24 Hours</td></tr></table>						Theory	Practical	Total	6 Hours	18 Hours	24 Hours																													
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13	Exam. System	<table><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>30111311</td><td>Communication devices</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30111321</td><td>Mobile Servicing</td><td>PR-I</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td>3</td><td>30111322</td><td>Maintenance of Communication devices</td><td>PR-II</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>400</td><td>185</td></tr></table>						Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30111311	Communication devices	TH-I	3 hrs	100	35	2	30111321	Mobile Servicing	PR-I	3 hrs	100	50	3	30111322	Maintenance of Communication devices	PR-II	6 hrs	200	100			Total			400	185
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Theory – I

Communication Devices Theory

Electrical and personal safety, dangers and preventions .

Introduction to various types of mobile handsets, their description, features & how to use these features.

Identify the keys and their uses.

Explaining of various features of mobile phones and methods of using the same.

Fault finding and trouble shooting Identify the components used in a cell phone .

Function of Mic, speaker and vibrator SMD soldering methods Identify BGA Ics. Identify various blocks and their functions Use of various solders , flux and cleaning agents.

Use of antenna and antenna switch.

Functions of display, CPU, memory .

Various locks used in cell phone PA section.

Complete knowledge of Block Diagram, circuit diagram, i.e., Power Section On/off circuit Net Section

Charging Section

Software Section SIM and SIM related problems of GSM & CDMA.

PHONES Use of computer for cell phone servicing – cell

phone software Camera phones its constructional details and working Bluetooth and other wireless circuits. Flashing and its need- precautions to be taken while flashing .

Knowledge of downloading of add-on software, ring tones, wall papers, themes, etc. on non multimedia

and multimedia handsets, window based handsets.

Practical – I

Mobile Servicing

1. Practice procedures for safety and health hazards measures.
2. Operation and setting of cell phone Identify various components of mobile handsets.
3. Replace faulty parts with new parts of mobile phone that can be done without use of soldering
4. Test the battery and battery charger with multimeter.
5. Testing of Mic, speaker and vibrator Soldering and de soldering of various SMD components and select suitable temperature for use.
6. Soldering and de soldering of BGA Ics.
7. Check track continuity and use jumpers for track problems.
8. Apply proper flux and cleaning the cell phone .
9. Test and rectify the problems in antenna and antenna switch
10. Identify the fault and test the display interface circuits.
11. Unlock and lock various functions.
12. Identify the faults of Network section and voice section and rectify them.
13. Rectify the faults related to SIM and SIM connector.
14. Rectify the faults in Camera and camera interface circuits.
15. Identify and Rectify the faults in Bluetooth circuits
16. Use of anti-static mats . Complete hardware and software knowledge of
17. PDA and multimedia handsets, Window based handsets.

Practical II

Maintenance of Communication Devices

Preventions & Identify the components used in Push button telephone.
 Understand the various tones used in the phone circuits.
 Use of microphone and speaker.
 Differentiate pulse dialing and tone dialing and their applications.
 Functions of the dialer circuit and speech circuit.
 Testing methods of pushbutton telephone for proper functions
 Use of various adaptors, connectors and sockets used in the telephone circuits.
 Methods to connect the trunk line and extension line in a EPABX
 Call wait, call transfer, conference facility available in a EPABX
 Read wiring circuits and understand the wiring of extension circuits.
 Testing of microphone and speaker Testing & replacing components in the protection circuit and ringer circuit.
 Test the key pad for proper function and repair the key pad problems.
 Identify the faulty component and replace in the dialer circuit and speech circuit.
 Identify and fix the various adaptors, connectors and sockets.
 Identify the terminals of trunk line and extension line and connect the extensions.

RESOURCES :

1. SMD rework station -	10 Nos.
2. Soldering station 6V/10W -	10 Nos.
3. Magnifying lens with illumination -	5 Nos.
4. BGA soldering kit -	10 Nos.
5. Computer with Flashing Unit -	5 Nos.
6. Tweezers (assorted size and shapes) –	10 Nos.
7. MULTIMETER (Digital) –	4 Nos.
8. ANTI-STATIC PAD	1
9. Software compatible with different types of handsets.	1 LICENCE COPY
10. Screw drivers assorted size and shapes (TROX) for cell phones	1 Set
11. EPABX of 2+ 6 line -	1 No.
12. EPABX of 2 + 10 line -	1 No.
13. Pushbutton telephones -	5 Nos.
14. Telephone analyzer -	1 No.
15. Crimping tool -	1 No.
16. MULTIMETER –	1 No.

(Every trainers should have his own tool kit – set of screw drivers, blade, soldering iron, multimeter, set of pliers, cutting, nose, combination pliers)

