DIGITAL AND CABLE TV TECHNICIAN (DCTT)

Core Qualification File Syllabus

Sl. No.	CONTENT	DETAILS
1.	Occupational safety (6 hrs)	1.1. Basic safety introduction & Personal protection as per HSE guideline 1.2. Basic injury prevention & elementary first aid 1.3. Safety sign for Danger, Warning, caution and personal safety message 1.4. Use of C type Fire extinguishers 1.5. Concept of Standard safety precautions
2	Introduction and working principle of digital and cable TV (22hrs)	2.1 Basic techniques about television communication system- Modulation and demodulation technique- AM, FM, Pulse Modulation, Digital modulation (PCM, ASK, FSK,PSK etc) . 2.2 Different technologies used in LED/LCD /CRT TV- Quantum dot display (QLED), Organic light-emitting diode (OLED) AMOLED, Electronic paper. E Ink. Gyricon, Light emitting diode display (**LED**), Liquid-crystal display (**LCD**) TFT. TN. IPS. **LED**. Blue Phase, Digital Light Processing (DLP), Liquid crystal on silicon (LCoS) etc 2.3 Characteristics and applications of different electronic SMD Components – like Resistor , Diode , Capacitor , Inductor , Transistor, Switching Transformers , Opt couplers , Regulators , Switches , MOSFET and IC's etc. 2.4 Different types of cables used in cable TV- Unshielded Twisted Pair (UTP) Cable, Shielded Twisted Pair (STP) Cable, Coaxial Cable, Fiber Optic Cable, Cable Installation Guides, Wireless LANs and Unshielded Twisted Pair (UTP) Cable.
3	Complete installation technique of digital and cable TV system. (14hrs)	3.1 Necessary criteria for installation -distance from power supply, vicinity to cable point, electrical works. 3.2 All supporting accessories for the installation of digital and cable TV- Android TV box,TV remote control, TV converter boxes,TV cover, etc 3.3 Installation procedure- Ladder safety, Cable routing, drilling and fixing, earthing and mounting the TV by connecting the electrical and cable line properly as per documentation.

4	Repair standard problems on digital and cable TV (12hrs)	4.1 Analyze the fault based on customer complaint record- no video problem, no audio problem, no audio and video problem, USB port problem, colour problem 4.2 Basic operation with inspection of LCD & LED Panel working, important Panel signals and Panel Voltages and DC to DC circuits details for Panel selection & Replacement , Panel Bypass method, power supply board, Inverter Board, Main Board Controller / T-conn Board - The LED Driver Circuit. 4.3 Removing and replacing the faulty module-LED, LCD display panel, backlight module, power supply port, timing controller port, inverter port, main board, jack pack section, remote sensing module with a functional one and then reassembling the complete functional unit. 4.4 Periodic maintenance, correct practices and complaint lodging procedure follow in order to avoid recurring problems
5	Proper use of different tools used for repairing work of digital and cable TV. (12hrs)	5.1 Different types of tools and equipments like multimeter, oscilloscope, SMD tester, rework station Panel testers, BIOS Programmer etc. for particular repairing works of digital and cable TV.
6.	Common Electrical wiring and cable layouts system for digital and cable TV (6hrs)	6.1 Basic electrical wiring, earthing, electrical connector, fuse, MCB, basic cable lay out to install a cable TV 6.2 Identify, function and location of spark plug due to loose/short contact.
Total		**72 hrs**

Detail of Practical Syllabus

SL NO	CONTENT (Any Eight)	DETAILS
1.	Proper use of different tools used for repairing work of digital and cable TV. (20 hrs)	Hands on practice for the use of different tools and equipments used for installation, repairing and maintenance works like hot air gun, desoldering pump, soldering material for zero defect soldering , CRO, Multimeter, Electrical drill machine, SMD tester, rework station Panel testers , BIOS Programmer etc for particular repairing works of digital and cable TV.
2.	Installation of different parts of a digital and cable TV system (15 hrs)	2.1Install and connect a coaxial cable to the distribution point to the grounding box. 2.2 Drill a hole to the wall with a drilling machine to mount the Tv. 2.3 Install and fix the TV mounting bracket with the help of screws. 2.4Assemble the various parts and sections with the Tv monitor. 2.5 Mount the TV on the mounting bracket. 2.6 Run the System.

3	Fault diagnosis and repairing technique of digital and cable TV (25 hrs)	3.1 To detect basic electrical fault such as in proper /no earth, effective power cords, connectors or internal wiring defects, blown fuse, short/loose/open contacts 3.2 To repair TV with jumper on board 3.3 To repair Color issue of screen 3.4 To repair faults of Hdmi port 3.5 To repair USB port error 3.6 To repair audio jack error 3.7 To repair fault of video in and video out 3.8 To repair voltage testing issue on board like 12v, 5, 3.3v 2.5v, 1.2volts 3.9 To repair auto power off problems of TV 3.10 To repair video ok but no audio problem and solution 3.11 To repair audio ok but no video on screen 3.12 To repair White screen problem and repairing 3.13 To repair LED/LCD repair with schematics diagram.
4	Preventive maintenance technique of digital and cable TV system (6 hrs)	5.1 Procedure to maintain TV free from dust to avoid problems like electrical shorts and other malfunctions.. 5.2 Procedure to use a quality electrical surge suppression device or UPS. 5.3 Procedure to avoid exposing the LCD and LED TV to high temperature and humidity 5.4 Procedure to of learning methods to sanitize the water storage tanks. 5.5 Procedure to keep safe distance from TV mounting wall
5	Project (30 hrs)	(a) Project-I (15 hrs) (b) Project-II (15 hrs)
Total		**96 hrs.**

Details of Project

Sl. No.	Content (each 15 hrs)	Details
1.	Project I	Installation and assembling of different types LED and LCD TV system.
2.	Project II	Cable lay out project for installation of digital and cable TV system

OUTCOMES

Outcomes to be assessed	Assessment criteria for the outcome
1. Explain knowledge for keeping safe working place.	1.1 Assessor will ask the student about checking of Electrical connections like proper earthling, short circuit protection. 1.2 Students will be asked to operate C type Fire Extinguisher. 1.3 Assessor will ask the student to use of proper First-aid treatment. 1.4 Students will be demonstrated to practical use of *proper PPE kit* as per norms. 1.5 Students will be demonstrated for standard safety precautions for servicing of Digital and Cable TV. 1.6 Define different standard safety symbols
2. Explain working principle and application of Digital and Cable TV.	2.1 Assessor will ask the basic electrical, electronics and science about television communication system. 2.2 Students will be asked about different technologies used in LED/LCD /CRT TV 2.3 Demonstrate different electronic SMD Components – like Resistor, Diode, Capacitor , Inductor , Transistor, Switching Transformers , Optocouplers , Regulators , Switches , MOSFET etc. 2.4 Students will be asked about different types of cables used in cable TV
3. Interpret outline plan, identify the cable and electrical line and assembling of different parts for complete installation of digital and cable TV system.	3.1 Assessor will ask the students about necessary criteria for installation like distance from power supply, vicinity to cable point, electrical works. 3.2 Demonstrate about of all supporting accessories for the installation of digital and cable TV. 3.3 Explain the installation procedure by Ladder safety, Cable routing, drilling and fixing, earthing and mounting the TV by connecting the electrical and cable line properly as per documentation.
4. Repair standard problems on digital and cable TV	4.1. Analyze the fault based on customer complaint record 4.2. Demonstrate basic inspection of LCD & LED Panel working, important Panel signals and Panel Voltages and DC to DC circuits details for Panel selection & Replacement, Panel Bypass method, power supply board, Inverter Board, Main Board Controller / T-conn Board - The LED Driver Circuit. 4.3 Students will be asked to remove and replace the faulty module with a functional one and then reassemble the complete functional unit. 4.3Demonstrate about periodic maintenance, correct practices and complaint lodging procedure follow in order to avoid recurring problems.

5. Explain various techniques about preventive maintenance of LED and LCD TV.	5.1 Explain Procedure to maintain TV free from dust to avoid problems like electrical shorts and other malfunctions.. 5.2 Demonstrate Procedure to use a quality electrical surge suppression device or UPS. 5.3 Explain Procedure to avoid exposing the LCD and LED TV to high temperature and humidity 5.4 Demonstrate Procedure to keep safe distance from TV mounting wall
6. Demonstrate the proper use of different tools used for repairing work of digital and cable TV.	6.1 Explain the use of different tools and equipments used for installation, repairing and maintenance works 6.2 Demonstrate about the different types of tools and equipments like multimeter, oscilloscope, SMD tester, rework station Panel testers, BIOS Programmer etc. for particular repairing works of digital and cable TV.