



MAHINDRA TECHNICAL INSTITUTE PUNE

Your Future. Our Mission



ADDRESS :- MAHENDRA TECHNICAL INSTITUTE
B Wing Flat No .:- 3 .1st Floor M .B .Classic Building, Telco Road, Chinchwad Station,
Pune - 411019, Near Chinchwad Station.

SYLLABUS

MODULE 1: BASIC ELECTRONICS.

1. Basic Electronics Concept, Formation of Current, AC/DC Concept, Rules for Flow of Current.
2. Resistor- Symbol, Function, Denoting Letter, Solid Type Resistor Colour Coding, SMD Type Resistor Coding, Value measurement by Multi meter and SMD Tester.
3. Capacitor – Function, Types, Symbol, Identification of Solid Type and SMD Type Capacitor, Testing of Capacitor by Multi meter and SMD Tester, Value measurement by SMD Tester.
4. Coil – Function, Symbol, Denoting Letter, Types of material, Properties of Coil, Identification of Solid and SMD type coil, Pack coil, Testing of Coil.
5. Diode: Function, Symbol, Denoting letter, Identification of Solid and SMD Type Diode, Types of Diode, Testing of Diode, Anode and Cathode Concept.
6. Transistor: Introduction, Types, Symbol, Denoting Letter, PNP and NPN Concept, Testing of Transistor, Function etc.
7. Mosfet: Introduction, Types, 3 leg Mosfet, 8 Leg Mosfet, Identification of N-Channel and P-Channel Mosfet, Testing of Mosfet, Dual Mosfet Concept, Switching Concept Etc.
8. Crystal: Introduction, Concept of Quartz, Clock and Pulse, Measuring unit, Types and Real Shape, Testing of Crystal etc.
9. Transformer and IC.

MODULE 2: CHIP LEVEL PRACTICE WITH TESTING & REPAIRING TOOL.

Use of Soldering Iron, Micro Soldering Iron, De soldering Pump, File, Tweezer, SMD Machine and Hot Melt Gun, All types of IC and Chip soldering/ Desoldering, All types of Electronic Component Solid and SMD soldering /Desoldering.

MODULE 3: CIRCUIT TRACING AND REPAIRING OF MOTHERBOARD.

1. Motherboard overview and Block Diagram of Motherboard.
2. Identification of all types of chip, ports, socket, slots etc.
3. Working Concept of Motherboard. Concept of RESET, READY, CLOCK Signal.
4. VRM Circuit- Overview, Tracing, Hot Testing, Shorting Problem in VRM Circuit, Troubleshooting, Internal Structure of VRM Chip, Volt Sense Circuit Concept, Programmable circuit, VID Concept.
5. RAM Supply: Identification of all Types of Desktop RAM, RAM Operating Voltage, RAM Supply Pin, All types of possible circuit of RAM Supply. Hot Testing.
6. Clock Generator Circuit: Identification of Clock Generator, Tracing, Use of Frequency Counter to measure Clock, Troubleshooting.
7. USB Port Circuit: USB Port Supply Pin Tracing, Data Pin Tracing.
8. Sound Circuit: Tracing, Supply Circuit of Sound Chip.
9. PS 2 Port Circuit: Pin Details of PS 2 Port, Supply Circuit, DATA and CLOCK Circuit.
10. SATA Port: Data Pin Tracing of SATA Port.
11. Sound Circuit – Tracing, Supply, Troubleshooting.
12. Standby Circuit: Standby Mosfet, Circuit tracing.
13. PCI Slot: Voltage, Data and Signal Testing.
14. Diagnostic Card: LED Status, Coding Concept
15. CRO Machine: Complete Operating of CRO for Voltage, Data and Signal Testing.
16. ROM Circuit: Identification of all Types of ROM, ROM Pin Details and Circuit Tracing.
17. ROM data and RAM Data: Data Testing on ROM and RAM Data Pin.
18. South Bridge Supply Circuit.
19. Repairing of RAM.
20. PS ON and Trigger Circuit.
21. BIOS Programming by Mini and Universal BIOS Programmer.
22. How to Check CPU Socket by CPU Socket Tester.

MODULE 4: LAPTOP HARDWARE CONCEPT.

1. Assembling and Disassembling of Laptop.
2. Identification of all parts of Laptop.
3. Identification and Function of all Ports and Socket of Laptop.

MODULE 5: CIRCUIT TRACING AND REPAIRING OF LAPTOP.

1. Volt in Circuit. Tracing and Troubleshooting.
2. VRM Circuit. Tracing and Troubleshooting.
3. Ram Supply Circuit. Tracing and Troubleshooting.
4. Step Down Circuit – 5 Volt and 3.3 Volt. Primary and Secondary Step down.
5. Battery Charging and Discharging Circuit. Tracing and Fault Finding.
6. Clock Generator Circuit.
7. Fan Controller Circuit.
8. USB Supply and Data Circuit.
9. SATA Supply and Data Circuit.
10. HDMI
11. LAN
12. AUDIO – Mike, Headphone and Internal Speaker Circuit Tracing.
13. E-SATA Port Circuit Tracing
14. CPU Thermal Circuit.
15. ROM – Identification of all types of ROM and Circuit Tracing.
16. Schematic Diagram – Laptop Motherboard Circuit Tracing through Schematic Diagram.
17. North Bridge Supply
18. South Bridge Supply
19. Graphics Chip Supply
20. Concept of PCH.
21. Keyboard and Touchpad Circuit.
22. Laptop BIOS Programming.
23. BGA Machine Operation, Chip Re balling.
24. How to Download BIOS File from Internet.
25. Laptop CPU Socket Details.
26. Password Removal Tips.
27. VGA Port.
28. Input Output Controller chip Connection Circuit,
29. Use of DC Supply Machine.
30. Laptop Display Assembly.
31. Concept of RESET.
32. Identification of all chip of laptop motherboard.
33. Common Faults of Laptop and Troubleshooting.