

LAPTOP SERVICE TRAINING LEVEL-1



Duration	30 days
Course Type	Regular / Fast Track / Weekend
Timing	Regular : 1.00 Hrs Fast Track : 2.00 Hrs Weekend : 4.00 Hrs
We Provide	Common: Course Materials Troubleshooting/Installation Manuals & ID Card Worldwide Online Verification Certificate Job Support: Job Reference as per Job provider's requirement. Self Employment Whole Sale Materials Purchase Address

CLASS	TOPICS
SESSION-1	INTRODUCTION <ol style="list-style-type: none"> 1. What is laptop? 2. Types of Laptop Service <ul style="list-style-type: none"> ➤ CARD LEVEL SERVICE [Hard Ware] ➤ CHIP LEVEL SERVICE [Motherboard] 3. Difference between laptop and desktop 4. LAPTOP MANUFACTURING COMPANIES-Acer /Apple /Compaq /Dell -etc. 5. How to buy a laptop? 6. Operating System review <u>1. Laptop Hardware Tools</u> <ol style="list-style-type: none"> 1. Screw Driver Kit 2. Laptop Casing Opener 3. Nose Pliers 4. Cutter And etc... 2. Laptop Chip Level Tools <ol style="list-style-type: none"> 1. Micro Soldering Iron 2. Tip Soldering Iron 3. Hot Air Blower 4. Magnifying Lenz with Lamp And etc... 3. Testing Equipment <ol style="list-style-type: none"> 1. Analog Mutimeter+ 2. Digital Multimeter 3. RCL Meter 4. Universal AC adapter And etc
SESSION-2	SESSION-2 RESISTOR
SESSION-3	SESSION-3 CAPACITOR
SESSION-4	SESSION-4 INDUCTOR & TRANSFORMER
SESSION-5	SESSION-5 DIODE
SESSION-6	SESSION-6 TRANSISTOR
SESSION-7	INTEGRATED CIRCUITS [IC]
SESSION-8	LAPTOP PARTS VIEW & KEYBOARD & TOUCH PAD <ul style="list-style-type: none"> ➤ <u>Components of Laptop:</u> Bottom Case &Top Case Outside Components/ Inside Components / laptop Inner View ➤ INSIDE COMPONENTS: <ol style="list-style-type: none"> 1.Ram 2. Hard Disk 3. Battery 4. Wi-fi Cards 5. PCMCIA Card 6. Floppy Disk 7. DVD/CDR Drive 8. Speaker 9. Exhaust Fan 10. Processor 11. Heat Sink 12. Adapter & Adapter Connector

	<ul style="list-style-type: none"> 13. Motherboard 14. LCD screen ➤ Internal Keyboard review /inner view /key board Manufacturing Companies ➤ Key board connectors removing method/Broken Keyboard Connector finding method. ➤ 1. Keyboard connector and lock removing method & key board keys rearranging method. 2. External keyboard -2.TOUCHPAD review /touchpad trouble shootings ➤ <u>PRACTICAL</u> Keyboard Keys Removing and Refixing Method Touchpad Removing and Refixing
SESSION-9	<p>ADAPTER & BATTERY</p> <ul style="list-style-type: none"> 1. How to ac adapter works? 2. Types of adapter <ul style="list-style-type: none"> a. Direct Adapter B.Universal Adapter Car c. Air Adapter 3. Laptop adapter voltage Comparison 4. Various models of ac adapter connector 5. <u>Adapter board components:</u> <ul style="list-style-type: none"> 1. SM Transformer 2. Bridge Rectifier Diode 3. NTC [Negative Temperature Coefficient] 4. Fuse 5. Oscillator IC 6. Opto Coupler 7. Switching MOSFET 8. Electrolytic capacitor. 6. Ac adapter functional block diagram 7. Adapter circuit view. <ul style="list-style-type: none"> 1. What is battery? 1. <u>Types of battery:</u> <ul style="list-style-type: none"> 1. Nickel-Cadmium (NiCad) 2. Nickel-Metal Hydride (Ni MH) 3. Li Ion Battery/how works battery? 2. Battery connector pin out 3. Laptop battery inside view 4. External battery 5. How to increase battery life? 6. <u>PRACTICAL:</u> <ul style="list-style-type: none"> 1. Ac adapter voltage testing method 2. Ac adapter fuse and capacitor removing & refixing 3. Ac adapter diode and mosfet soldering practice
SESSION-10	<p>RAM & HARD DRIVE</p> <ul style="list-style-type: none"> 1. How work RAM? 2. Types of RAM

	<ol style="list-style-type: none"> 1. SRAM [STATIC RAM] 2. DRAM [DYNAMIC RAM] 3. Types of Dynamic RAM. 4. <u>Laptops RAM slot review:</u> <ol style="list-style-type: none"> 1. SODIMM [Small Outline Dual Inline Memory Module] 2. Micro DIMM [Micro Dual Inline Memory Module] 5. RAM comparison of DDR 1 /DDR2 & DDR3. 6. DDR1 & DDR2 RAM BUS SPEED list. 7. DDR3 memory speed list. 8. RAM working voltage list 9. RAM manufacturing companies. <ol style="list-style-type: none"> 1. What is hard disk? 2. Types of hard disk. <ol style="list-style-type: none"> 1. IDE Hard disk 2. SATA Hard disk 3. External Hard disk 3. Hard disk manufacturing companies 4. SATA to USB convertor & IDE to USB convertor 5. Hard disk inside components & its function. 6. Failure symptoms for hard disk 7. Hard disk maintenance guide.
SESSION-11	<p>LAPTOP COMPLETE DISASSEMBLING /ASSEMBLING</p> <ul style="list-style-type: none"> ➤ <u>Soldering Practice:</u> Motherboard SMT components removing and refixing method [RESISTORS/CAPACITORS/INDUCTORS/SMD FUSE /CRYSTALOSCILLATORS/DIODE/TRANSISTOR/MOSFET & IC's]
SESSION-1 2	<p>LAPTOP COMPLETE DISASSEMBLING/ASSEMBLING How to disassemble SONY VAIO laptop</p>
SESSION-13	<p>PCMCIA CARD &DVD DRIVE</p> <ul style="list-style-type: none"> ➤ What is PCMCIA card? ➤ <u>Types of PCMCIA card:</u> 1.gold card 2.silver card ➤ Variety of PCMCIA Card <ol style="list-style-type: none"> 1. Wireless Card 2. Usb Card [Single/Double/Four] 3. Network Card 4. TV Tuner Card 5. Combo Card 6. Dvd to Mpeg Card 7. PCMCIA to Serial Port 8. Card Reader 9. Sound Card 10. Modem 11. Pcmcia to IEEE 1394 Fire Wire Adapter ➤ PCMCIA LAN card logic board [inside view] PCMCIA tray & PCMCIA adapter ➤ PCMCIA card troubleshooting. ➤ <u>Optical drive:</u> Internal drive (laptop inside using this drives) & External drive

	<p>(externally using this drives</p> <ol style="list-style-type: none"> 1. CD ROM 2. CD r/w 3. DVD ROM 4. Compo drive 5. DVD r/w 6. HD DVD r/w 7. Blu - ray drive 8. Various type of DVD drive interfaces. <p><u>External CD ROM & other devices:</u></p> <ol style="list-style-type: none"> 1. External blue - ray drive 2. Notebook slim CD to desktop IDE CD converter/CD/DVD writing software/DVD viewing software <p><u>SPEAKER:</u> Internal speakers & External Speaker</p> <p><u>WI-FI CARDS review:</u> WI-FI card parts /How to Connect the Wi-Fi to Internet?</p> <p><u>Various types of web camera</u></p>
SESSION-14	<p>LAPTOP MOTHERBOARD AND ITS FUNCTION</p> <ol style="list-style-type: none"> 1. What Is Laptop Motherboard? 2. Laptop Motherboard Functional Block Diagram & Its Function 3. Acer Laptop Motherboard Functional Block Diagram Acer Aspire 5720 Motherboard Front View & Acer Aspire 5720 Motherboard Back View 4. <u>Motherboard Brands List:</u> <ol style="list-style-type: none"> 1. Compaq Motherboard 2. HP Motherboard 3. Acer Motherboard 4. Dell Motherboard 5. IBM Lenovo Motherboard 6. Sony Motherboard 7. Toshiba Motherboard 8. Apple Motherboard 9. Fujitsu Motherboard 10. Samsung Motherboard. 5. <u>Types of motherboard</u> <ol style="list-style-type: none"> a. Single Board Based Motherboard B. Daughter Board Based Motherboard 6. Some various brands of Laptop Functional Block Diagram 7. <u>PRACTICAL:</u> <ol style="list-style-type: none"> 1. Laptop Motherboard Passive Components Identification & Testing Method 2. Laptop Motherboard Active Components Identification & Testing Method 3. Laptop Motherboard Section Identification.
SESSION-15	<p>LAPTOP MOTHERBOARD SECTIONS AND COMPONENTS IDENTIFICATION</p> <ol style="list-style-type: none"> 1. <u>Types of motherboard section</u> <ol style="list-style-type: none"> 1. Power Section: <ol style="list-style-type: none"> A. Main Power B. Battery Power

	<ul style="list-style-type: none"> 2. CPU Power Section: <ul style="list-style-type: none"> A. CPU Voltage Regulator Module [VRM] B. Temperature Control 3. Graphics Processor Unit [GPU] Section 4. Chipset Section: <ul style="list-style-type: none"> A. North Bridge B. South Bridge 5. BIOS & CMOS Section 6. Memory Section [RAM] 7. Input/output [I/O] Section 8. Clock Section 9. Keyboard Control & PCMCIA Section 10. Audio Section 11. Laptop Display Section [LCD-TFT] <u>2. Laptop Motherboard IC's List:</u> <ul style="list-style-type: none"> 1. Step down or system main power IC. 2. CPU core power [VRM] IC 3. CPU thermal control IC 4. Fan speed controller IC 5. Operational amplifier [op-amp] 6. Battery charge & discharge control IC 7. PCI card power IC 8. MOSFET gate driver IC 9. I/O controller IC 10. BIOS IC & etc. <u>3. IC Manufacture Name:</u> <ul style="list-style-type: none"> 1. Power IC: <ul style="list-style-type: none"> A) Maxim B) Texas C) Intersil [LSI] D) ADP & etc <u>4. Motherboard components identification</u> <u>5. Soldering Practice:</u> 1. Motherboard SMT Components Removing and Refixing Method-Resistors/Capacitors/Inductors/SMD Fuse & Crystal Oscillator/Diode/Transistor/MOSFET & ICs
SESSION-16	<p>LAPTOP DISASSEMBLING & ASSEMBLING.</p> <ul style="list-style-type: none"> 1. How to Disassemble HP Pavilion laptop & its Motherboard replacement method. 2. <u>Practical:</u> Laptop Disassembling & Assembling
SESSION-17	<p>POWER SECTION</p> <ul style="list-style-type: none"> ➤ <u>Types of power section:</u> <ul style="list-style-type: none"> 1. System main power [step down] 2. Battery power [charge and discharge] <u>1. Power Section Components:</u> <ul style="list-style-type: none"> 1. System main power supply IC or step down regulator controller IC 2. N & P channel MOSFET [8 leg] 3. DC power Jack. 4. Battery charge/discharge control 5. Power diode. 6. Power resistors 7. Polarity capacitors [tantalum or solid aluminum] 8. Fuse [1.5 Amps] or Fusible resistor 9. Operational amplifier [Op-

	<p>Amp] IC</p> <ol style="list-style-type: none"> 10. Power inductor. 2. How to Work System Main Power or Step Down Regulator Section? 3. Functional Block Diagram of voltage Regulator Section 4. <u>Types Of voltage regulator IC :</u> <ol style="list-style-type: none"> 1. Dual Output voltage regulator IC 2. Triple Output voltage regulator IC 3. Quad Output voltage regulator IC 4. Multi Output voltage regulator IC 5. <u>Voltage regulator Supply Voltage list For Motherboard Circuit</u> 6. Component Identification of voltage regulator Section 7. Functional Block Diagram of Battery Control Section <u>Laptop power working mode:</u> <ol style="list-style-type: none"> 1. Adapter power mode 2. Battery power mode 8. Power section ICs number list 9. Power rails description 10. Voltage regulator IC datasheet IC max1630, max1631, max1632, max1633, max1634, max1635- datasheet System main power IC tps51120- datasheet Battery control ICmax8731a- datasheet 11. Power section MOSFET review 12. Practical System main power IC removing & refixing method Battery control IC removing & refixing method DC power connector removing & refixing method MOSFET removing &refixing method
<p>SESSION-18</p>	<p>LAPTOP PROCESSOR</p> <ol style="list-style-type: none"> 1. What is a processor? Processor architecture & front side bus (FSB) What are the latest processors? & Intel Laptop Processors review 2. <u>Processor manufacturing company:</u> <ol style="list-style-type: none"> 1. INTEL 2. AMD 3. VIA 3. Types of processor 4. AMD family processors & block diagram of AMD processor 5. <u>Laptop processor socket [old]:</u> <ol style="list-style-type: none"> 1. Screw type socket 2. Ziff socket. 6. Latest Processor Socket 7. <u>Latest laptop processor socket & supported processors and socket</u> <u>m supported Intel processors:</u> <ol style="list-style-type: none"> 1. Intel Celeron M 2. Core 2 Duo Mobile 3. Core Duo 4. Core Solo 5. Pentium Dual-Core Mobile <p>SOCKET G1 & G2 [SOCKET 988 &989] supported Intel processors.</p>

	<p>Socket s1 supported AMD processors</p> <p><u>8. Processor core technology</u></p> <p><u>9. What is dual core?</u></p> <p>What is quad core?</p> <p>What is multi core?</p> <p>10. How to reduce CPU temperature?</p> <p>11. Laptop CPU cooling fan and its checking method</p> <p>12. Various types of laptop processor heat sinks.</p>
SESSION-19	<p>CPU POWER SECTION OR VOLTAGE REGULATOR MODULE [VRM]</p> <p>1. How work CPU voltage regulator module [VRM]?</p> <p>2. CPU power section – functional block diagram</p> <p>What are some of the switching regulator topologies?</p> <p><u>3. CPU power section components:</u></p> <ol style="list-style-type: none"> 1. CPU Core Power IC 2. N-Channel MOSFET 3. Tantalum Capacitor 4. Inductors 5. Switching Diode 6. Resistors <p>4. Component identification CPU power section</p> <p>5. Some laptop motherboard CPU power section</p> <p>6. CPU power supply IC's list</p> <p>7. CPU Power IC Datasheet</p> <p><u>8. CPU power section soldering practical:</u></p> <ol style="list-style-type: none"> 1. CPU core power IC removing & refixing method 2. N-Channel MOSFET [3 legs & 8 legs] Removing & Refixing method
SESSION-20	<p>DISASSEMBLING & ASSEMBLING PRACTICAL</p> <p>➤ Complete laptop disassembling & assembling practical</p>
SESSION-21	<p>GPU & CHIPSET</p> <p>1. Laptop motherboard & GPU block diagram</p> <p><u>2. Laptop graphics card types:</u></p> <ol style="list-style-type: none"> 1. Inbuilt graphics adapter 2. Slot or socket type graphics card 3. PCMCIA graphics card. <p><u>3. Graphics card manufacture:</u></p> <p>ATI, NVIDIA, Intel GMA</p> <p>4. What is graphics card?</p> <p>5. How to dry solder the GPU?</p> <p>6. Laptop GPU safety tips</p> <ol style="list-style-type: none"> 1. What is chipset? <p>Chipset North Bridge & south bridge</p> <p>Laptop motherboard diagram with chipset</p> <ol style="list-style-type: none"> 2. Northbridge & Southbridge architecture 3. Chipset bus connectivity 4. Chipset manufacturing companies: Intel, via, NVIDIA, ATI, SIS, AMD. 5. How to find the chipset defeat or not? <p><u>6. Lab practice:</u></p>

	<ol style="list-style-type: none"> 1. Laptop GPU [graphics chips] dry solders method 2. Laptop Northbridge chipset dry solder method 3. Laptop Southbridge chipset dry solder method.
SESSION-22	<p>BIOS & CMOS</p> <ol style="list-style-type: none"> 1. How BIOS work? Bios IC identification for laptop motherboard 2. What BIOS does? 3. Bios settings & bios booting process 4. Configuring for phoenix bios <u>5. BIOS software manufacturing companies:</u> <ol style="list-style-type: none"> 1. Phoenix BIOS set up 2. Award BIOS set up 3. Dell laptop BIOS set up 4. Compaq Presario laptop BIOS set up 5. Acer laptop phoenix BIOS set up 6. Updating your BIOS 7. Why updating BIOS software? 8. Different type of BIOS ICs 9. BIOS IC pin configurations 10. How to find memory capacity for bios chip? 11. Marking code of bios IC 12. Most BIOS setup utilities. <u>13. Some common BIOS error message:</u> <ol style="list-style-type: none"> 1. Phoenix BIOS error codes 2. BIOS error codes [directly tell the error] 14. BIOS error codes. 15. CMOS battery or RTC battery. 16. Difference types of cmos battery 17. CMOS battery related problems. 18. How to reset & remove a bios or CMOS password? <ol style="list-style-type: none"> 1. by removing CMOS battery 2. by using software 3.by using backdoor bios password BIOS manufacturing website and how to create bootable CD using Nero <ol style="list-style-type: none"> 1. AMI bios text error message 2. Award bios text error message 3. Phoenix bios text error message
SESSION-23	<p>1.I/O IC 2.CLOCK IC 3.KEYBOARD CONTROL IC 4.AUDIO IC 5.PCMCIA IC 6.LAN IC</p> <ul style="list-style-type: none"> ➤ <u>IO section</u> <ol style="list-style-type: none"> 1. Laptop motherboard block diagram for IO section 2. I/O Functional Diagram & locating I/O chip for motherboard 3. Laptop I/O IC –it8510te review laptop I/O chip-it8510te block diagram 4. IO chip It8750te Datasheet 5. Some I/O - IC Brands ➤ <u>Clock Section</u> <ol style="list-style-type: none"> 6. What Is Clock? And it's Function

	<p>7. Clock Chip Identification for Sony laptop motherboard 8. How Work Clock IC? 9. Clock Generator Internal Diagram 5. Clock Speed Measurement 10. Clock Chip Ics954204 Datasheet 11. Laptop Clock IC Brands <u>Keyboard Control IC</u> 12. Keyboard IC Identification for Laptop Motherboard 13. Keyboard Control IC -87541v Datasheet <u>14. Audio Section</u> 1. Audio Section Parts 2. Audio Chip Identification for Laptop Motherboard 3. Audio Board Failure Symptoms and Troubleshooting Tips. 4. Audio Board for Laptop Motherboard Dell Inspiron 1300 Laptop Motherboard Audio Section 15. Stac 9228 Audio Codec Pin Diagram 16. Audio amplifier IC datasheet for dell inspiron Audio IC Ad1981b Datasheet <u>17. PCMCIA IC:</u> Functional Block Diagram of PCI1420 IC & PCMCIA IC Datasheet <u>18. LAN IC:</u> Laptop LAN Card Board &LAN IC Rtl8100 Datasheet</p>
SESSION-24	<p>LAPTOP LCD DISPLAY SECTION</p> <p><u>1. Types of Display:</u> 1. LCD (Liquid Crystal Display) 2. TFT (Thin Film Transistor Technology) 2. LCD with Motherboard 3. LCD Connector Detail 4. How LCD Display Works? 5. Display Layers and it explain. LCD Back Light [CCFL] with Inverter Circuit 6. How Is the LCD in a Laptop Computer So Bright? 7. Inner Parts View of Display 8. CCFL Lamp or Back Light Lamp 9. Various types of CCFL Inverter 10. Laptop LCD Back Light Inverter & Its Parts Identification <u>LCD Parts Review:</u> 1. External Display 2. LCD Hinge ➤ Some LCD Back Light Control ICs List. ➤ How to Replace Broken Screen on Sony Vaio Laptop ➤ HCL Laptop LCD Dismantle and its parts identification images Laptop LCD screen complete removing & refix practical live with repairing technique</p>
SESSION-25	<p>TROUBLE SHOOTING 1 to 50</p> <p>➤ CPU related Problem & its salvation ➤ GPU Problem [Video Processor] & its salvation ➤ <u>NVIDIA GPU Dry Soldering Method:</u> Most Common Problem Symptoms ➤ Laptop Over Heat Problem & its salvation ➤ Laptop Power Adapter Testing Method & its problem ➤ Laptop Battery Problem & its solution</p>

	<ul style="list-style-type: none"> ➤ Keyboard Related Problem ➤ Network Port Failure ➤ USB Ports Failure. ➤ Wireless (Wi-Fi) Card Failure ➤ Flash Memory Card Reader Failure ➤ Internal CD & DVD Drive Failure ➤ Audio Related Problem ➤ Laptop CPU & GPU Cooling Fan Related Problem ➤ How to Find Laptop Motherboard Failure Symptoms? ➤ Hard Disk Failure Reason & its solution ➤ Laptop Motherboard Problem & its solution ➤ Web Camera Not Working ➤ Laptop Display Are Damaged ➤ Laptop LCD Screen Related Problems ➤ And etc.....
SESSION-26	LAPTOP DIS ASSEMBLING & ASSEMBLING PRACTICAL RIVISION
SESSION-27	LAPTOP LCD SCREEN PRACTICAL RIVISION
SESSION-28	LAPTOP BOARD COMPONENTS SOLDERING PRACTICAL RIVISION-1
SESSION-29	LAPTOP BOARD IC SOLDEING PRACTICE RIVISION
SESSION-30	LAPTOP HARDWARE RELTED DOUBT CLEARING CLASS

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