INTERSOFT TECHNICAL INSTITUTE

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LAPTOP REPAIR TRAINING COURSE MATERIAL

COMPUTER CHIP LEVEL TRAINING:

MODULES	COURSES	REGULAR 1.5 HRS	FAST 3 HRS	FULL DAY 6 HRS
MODULE C1	COMPUTER SERVICE TRAINING (CARD LEVEL SERVICES)	1 Month	15 Days	4 Days
MODULE E1	BASIC ELECTRONICS	15 Days	7 Days	2 Days
MODULE C2	SMPS, LCD REPAIRING (CHIP LEVEL TRAINING)	15 Days	8 Days	2 Days
MODULE C3	COMPUTER BOARD REPAIRING (CHIP LEVEL TRAINING)	1 Month	15 Days	4 Days

LAPTOP CHIP LEVEL TRAINING:

MODULES	COURSES	REGULAR 1.5 HRS	FAST 3 HRS	FULL DAY 6 HRS
MODULE L1	LAPTOP BASIC SERVICE (CARD LEVEL SERVICES)	15 Days	6 Days	1 Days
MODULE L2	ADPTER BATTERY LCD	15 Days	10 Days	1 Days

	INVERTER			
MODULE L3	**SMPS, LCD REPAIRING (CHIP LEVEL TRAINING)**	**1.5 Month**	**1 Days**	**4 Days**
MODULE L4	**COMPUTER BOARD REPAIRING (CHIP LEVEL TRAINING)**	**-**	**-**	**5 Days**
MODULE L5	**SERVICE CENTER TRAINING (WORKING EXPERIENCE)**			

Terms & Condition:-

⇒ **Registration Fees 1000/- Extra On Any Course**

⇒ **Reserve Seat before class and take online class**

⇒ **Course content, Fees & chapter may be change without prior notice**

MODULE C1

COMPUTER BASIC HARDWARE (for freshers)

1   Basics Of Electronics (AC,dc, volt ampear, multemeter used, measurement)

2   Fundamentals Of Computer(Defination,generation, classification, anatomy, input, output)

3   Computer Assemble & Parts Identify (smps, cabinet, board, storage, cpu , board   )

4   Smps (types, pindetail, 12v, 5v, 3.3v pson, pgood, standby)

5   Motherboard & Cpu (types, block diagram, chip identify, north, south , io, lan, vga, agp etc   )

6   Hard Disk & Cd/Dvd (STATA, PATA, size type, internal parts, spindle, motor , head ,vcm   )

7   Monitor /Lcd /Led (working idea of lcd, basic problems of lcd, moniter)

8   Ram : (types of RAM , DDR1, DDR2, DDR3 , DDR4 , different volt   )

9   Printer Basic Ideas: (Types , DMP, LASER, INKJET, ALLINONE , changing cartrage)

10 Types Of Cards (agp, graphics,, lan, vga , usb   )

11 Basic Operating System: (types, single , multi user, booting process, bios setting,   )

12 Installing Os & Drivers(format , windows installation, driver installation)

13 Windows Operating Systems (basic used, device manager, control panel, dos cmd, config)

14 Virus, Antivirus, Internet, Settings (antivirus software, internet connection, use of internet)

15 Troubleshooting Of Computers (msconfig, repair, NTLR missing, file missing)

16 Basic Networking Concept: (types of network ,cabling, cripting, ip address, subnetting, sharting files, printer)

Note: Before attending Module L1 , basic electronics module Should be clear.

MODULE L1

LAPTOP BASIC SERVICE TRAINING

1. Introduction. Laptop, Difference, Advantage, Uses, Safety.
2. Tools Required for Servicing Laptop.
3. Identify Parts of Laptop.
4. Dismantle & Assemble and Laptop with Parts Identify.
5. Adapter: Work, Types, Volt, Ampere, Pin Checking.
6. Battery: Types, Pin out Details, Basic Problems, Checking.
7. TFT/LCD/ LED: Types of LCD, TFT/LCD, Size, Pin, Width.
8. Inverter, CCFL: Usage and Concept of Inverter, CCFL Work.
9. Motherboard: Types, Block Diagram, Identify.
10. CPU Processor, Fan, Heat Sink: Types Identify.
11. Keyboard, Touch Pad: Types, Working Concept, Connection.
12. Hard Disk: Types, Diagrams, Basic Problems, IDE Sata.
13. RAM: Types, Working Concept, Basic Problems.
14. CD/DVD: Common Faults, Eject, Locks, Removing.
15. Others: Body, Hinges, Panels, WIFI Card, PCMCIA Card, Speakers   Changing and Replacing Above Components.
16. Formatting & Installation of Operating Systems & Drivers on Laptop.

MODULE L2

ADAPTER, BATTERY , LCD, INVERTER, ETC REPAIRING CONCEPT

1. ADAPTER REPAIRING CONCEPTS :- Opening adapter, Testing Point, Troubleshooting ,
2. BATTERY REPAIRING CONCEPTS :- Working Idea, open a Battery, Check Cells, , Battery IC Repairing Concepts of Battery

3. LCD /TFT/LED CCFL / LCD TUBE CONCEPTS :- Pin out Details, Common Problems, Different Size of LCD, Repairing Concept of LCD, CCFL Testing, Replacement concepts of CCFL
4. INVERTER REPAIRING CONCEPTS :- Pin Detail, Vcc, contrast, on /OFF, Gnd, Brightness controller MOSFET, Testing Inverter Troubleshooting of Inverter
5. RAM :- Pin Details, SPD Firmware update concepts, Common faults of RAM Main signals and voltage of RAM
6. KEYBOARD/ TOUCHPAD :- Basic problems & solution of Keyboard and Touch Pad, Working function of Touchpad switch
7. HARD DISK :- Types of Hard Disks ,Converter used for Hard Disks , Common fault in Hard Disk section (motherboard section), Pin details of Hard Disk

MODULE L3

LAPTOP MOTHERBOARD CHIP LEVEL TRAINING

MODULE L3.1

LAPTOP WORKING DETAIL

CHP 1. INTRODUCTION TO LAPTOP BOARD:

    a. Identify Components On Differenent Laptop Motherboard
    b. Basic Differences Between Laptop & Desktop
    c. Mechanical Difference Power, Reset, Clock
    d. A List Of Tools Required For Repairing Laptops

CHP 2. BLOCK DIAGRAM OF BOARD , CHIP IDENTIFY:

    a. Types Of Board Platform Intel Amd
    b. Block Diagram Of Laptop Board Connection
    c. Identify Laptop Boards Connection ,
    d. Laptop Chips Detail And Types
    e. Identify Ic Pin Detail , Datasheet, Pin Count Process

CHP 3. BASIC WORKING DETAIL OF BOARDS:

    a. Understanding Hand Shaking Signals , Binnary Systesm, On/Off
    b. Different Power To Different Chips, How Voltage Divided
    c. Pci Reset, Clock Frequency Bios Software
    d. Stage Of Motherboared, Mechanica, Standby, Shut Down, When Required

CHP 4. MOSFETS AND ITS USED, SWITCHING, AND REGULATOR:

a. Mosfets Types, Identify N Channel P Channel, Testing Identify
b. Swithcing Used, Regulator Used,
c. Step Down Process ,Regulator Chip, , Switching Used Of Mosfet,

CHP 5. POWER ON STAGE PRIMARY, SECOND, VRM:

a. Understanding Power On Sequenc Of Board

MODULE L3.2

SCHEMATIC DIAGRAM TRACING

CHP 6. LAPTOP SCHEMATIC DIAGRAM, TYPES ODM:

a. Types Of Schematic Diagram With Manufacture
b. Identify Components On Schematic Diagram
c. List Of Schematic Diagram With Models No
d. Understanding Switching Section With Schematic Diagram

CHP 7. POWER SUPPLY CHIPS DETAIL AND UNDERSTAND SIGNALS:

a. Battery Charging & Vin :- Pinout Of Battery Connection, Battery Chip, Important Signals Of Battery Chip, Tracing Signals Of Battery
b. Always Power On:-Pcu, Main, S5 Power, Aux, Etc.
c. Primary Voltage :- 5v, 3v Sus, Main, So,S3, Power
d. Secondary Voltage :- 2.5, 1.8v Sus Main, So, S3, S4 Power
e. Others Power Chip 1.2, 1.4, 1.5v, Sus, Main , So S3, S4 Power
f. Cpu Core Vrm Voltage Regulator Module:- Main Signals Of Vrm Chip, Function Of Vrm Chip, Measure Vrm Input And Output Signals, Vron, Pgood, Etc.

CHP 8. CLOCK GENERATOR, CPU SECTION:

a. Understanding Whole Block Diagram Through Schematic Diagram
b. Clock Generator Chip:- Clock Generator Chip Oscillating Frequency To Different Chip, Main Signals Of Clock Chips
c. Cpu Section (Intel, Amd) What Is the Importance Of Signals In Cpu? Understanding Basic Signals Of Cpu, Cpu Different Power Vcccore, Connection Of Cpu With Other Chips

CHP 9. NORTH BRIDGE AND GRAPHIC CHIP CONNECTION:

a. NORTH BRIDGE (MCH) Memory Control Hub:- Understanding Basic Signals Of North Bridge, Northbridge Different Power Supply, Connection With Different Chips
b. GRAPHICS CHIP:- Why Graphics Chip Is Used, What Problem Is Created By Graphics Chip, Main Types Of Graphics Chips, Nvdia, ATI, Etc.
c. CPU TEMPERATURE CONTROL :- Function Of Temperature Related To CPU And Controls
d. RAM   MEMORY POWER SUPPLY:- Important Signals Of RAM, Understanding Basic Signals Of Ram, Ram Different Power Supply, Connection With North Bridge

e. LCD & BACK LIGHT CONTROL: - Functions Associated With LCD Backlight Controls, Inverter, Etc.
f. DISPLAY CONNECTOR
g. DVOC / TVOUTPUT

CHP 6. LAPTOP SCHEMATIC DIAGRAM, TYPES ODM:

e. Types Of Schematic Diagram With Manufacture
f. Identify Components On Schematic Diagram
g. List Of Schematic Diagram With Models No
h. Understanding Switching Section With Schematic Diagram

CHP 7. POWER SUPPLY CHIPS DETAIL AND UNDERSTAND SIGNALS:

g. Battery Charging & Vin :- Pinout Of Battery Connection, Battery Chip, Important Signals Of Battery Chip, Tracing Signals Of Battery
h. Always Power On:-Pcu, Main, S5 Power, Aux, Etc.
i. Primary Voltage :- 5v, 3v Sus, Main, So,S3, Power
j. Secondary Voltage :- 2.5, 1.8v Sus Main, So, S3, S4 Power
k. Others Power Chip 1.2, 1.4, 1.5v, Sus, Main , So S3, S4 Power
l. Cpu Core Vrm Voltage Regulator Module:- Main Signals Of Vrm Chip, Function Of Vrm Chip, Measure Vrm Input And Output Signals, Vron, Pgood, Etc.

CHP 8. CLOCK GENERATOR, CPU SECTION:

d. Understanding Whole Block Diagram Through Schematic Diagram
e. Clock Generator Chip:- Clock Generator Chip Oscillating Frequency To Different Chip, Main Signals Of Clock Chips
f. Cpu Section (Intel, Amd) What Is the Importance Of Signals In Cpu? Understanding Basic Signals Of Cpu, Cpu Different Power Vcccore, Connection Of Cpu With Other Chips

CHP 9. NORTH BRIDGE AND GRAPHIC CHIP CONNECTION:

h. NORTH BRIDGE (MCH) Memory Control Hub:- Understanding Basic Signals Of North Bridge, Northbridge Different Power Supply, Connection With Different Chips
i. GRAPHICS CHIP:- Why Graphics Chip Is Used, What Problem Is Created By Graphics Chip, Main Types Of Graphics Chips, Nvdia, ATI, Etc.
j. CPU TEMPERATURE CONTROL :- Function Of Temperature Related To CPU And Controls
k. RAM   MEMORY POWER SUPPLY:- Important Signals Of RAM, Understanding Basic Signals Of Ram, Ram Different Power Supply, Connection With North Bridge
l. LCD & BACK LIGHT CONTROL: - Functions Associated With LCD Backlight Controls, Inverter, Etc.
m. DISPLAY CONNECTOR
n. DVOC / TVOUTPUT

CHP 10. SOUTH BRIDGE, LAN , AUDIO, HDD, CDD, CARD READER:

a. SOUTH BRIDGE(ICH);- What is the basic function of south bridge, southbridge different power supply, connection with different chips
b. LAN NETWORK CHIP:- Function of network chip, connections of network chip
c. AUDIO SOUND CHIP:- Function of sound audio chip, connections of sound chips

d. BIOS Section :- AWARD, PHONIX, AMIBIOS, COMPAQ, IBM :- Types of BIOS chip , main signals of BIOS chip, connection with i/o & Southbridge signals, CMOS battery power supply to BIOS chip

e. Rtc section

f. Hdd sata pata

g. USB ESATA CONNECTION

h. PCI CARD

i. WIFI MODEM CONNCTION

Chp 11. I/O CONTROLLER KEYBOARD, TOUCHPAD, CAMERA, POWER CONTROLLER:

a. I/O CONTROLLER (Power Chip Control Section) :- Main Signals Of I/O Chip, I/O Chip Contain Power Control Chip In Some Models, Connection And Function Of I/O Chips

b. KEYBOARD, Connection Detail ,

c. TOUCH PAD, Connection Detail Main Signals

d. POWER CONTROLLER CHIP , Power Main Signals Detail

e. CAMERA ,

f. MAGNET SENSOR

CHP 12. PCH (PLATFORM CONTROLLER HUB) NORTH+ SOUTH:

a. Pch Board Function Types

b. Difference In Connection

CHP 13. TRACING BOARD WITH SCHEMATIC SIGNALS:

a. CPU,

b. North , Ram, Display

c. South Audio, Lan, Connector,

d. I/O Keyboard, Touchpad, Etc

CHP 14. CHARGING AND PRIMARY VOLTAGE:

a. Charging , VIN, &Main PCU/ AUX / S5 Voltage Signals (Always On Voltage)

b. Primary Voltage Output Signals (MAIN SUS (5v,3.3v) S0/ S3)

CHP 15. SECONDARY VOLTAGE OUTPUT SIGNALS (SUS, MAIN (2.5V,1.5V) S0/ S3):

OTHER VOLTAGE

CHP 16. VRM SECTION & PCI RESET SIGNALS:

CHP 17. TRACING OF DIFFERENT LAPTOP BOARD POWER STAGES:

a. Understand Power On Different Signals Concept Of HP LAPTOP Motherboard

b. Understand Power On Different Signals concept Of Dell Laptop Motherboard

c. Understand Power On Different Signals Concept Of IBM Laptop Motherboard

MODULE L3.3

FAULT FINDING STEPS

CHP 18. HOW TO USE CROBASIC CONCEPTS, TESTING WITH CRO& MULTIMETER(STEPWISE):

    a. Understanding CRO , Used,
    b. Testing , Frequency , Vrm Power, Signals

CHP 19. TESTING TOOLS , DEBUG CARD, SLOT TESTER:

    a. DEBUG CARD, Error Codes, Identify Different Problems
    b. Slot Tester :- Cpu, Ram

CHP 20. BIOS UPDATE, RESET:

    a. Bios Update Process,
    b. Bios Password Concept

CHP 21. WASHING, CLEANING, DRYING & DRY SOLDER PROBLEM SOLUTION OF MOTHERBOARD:

    a. Washing & Drying Steps Of Board
    b. Dry Solder Problems To Solve

CHP 22. TESTING LAPTOP POWER CONSUMPTION THRU POWER SUPPLY UNIT:

CHP 23. FAULT FINDING LAPTOP POWER SECTION:

P1	Dead laptop tracing step,
P2	Adapter power off when connect to laptop
P3	laptop charging led not on
P4	laptop not power on by pressing on off switch
P5	laptop power led on and closed in 2/3 sec
P6	laptop power on and off in 30 seconds
P7	laptop power led on but no display
P8	laptop not power on by adapter but power on by battery
P9	laptop not power on by battery , but on by adapter
P10	rtc, cmos battery power section
P11	laptop some time on , some time not on
P12	laptop protection circuit
P13	laptop VIN/ PWRSRC not generate
P14	always power on section troubleshooting
P15	Charging section troubleshooting
P16	Primary section troubleshooting
P17	Secondary section troubleshooting
P18	Laptop VRM section troubleshooting
P19	laptop other power on troubleshoot
P20	Laptop over heated

CHP 24. FAULT FINDING LAPTOP CONNECTION:

C1	Laptop CPU troubleshooting
C2	Laptop clock troubleshooting
C3	Laptop north bridge/ gmch troubleshooting
C4	Laptop RAM troubleshooting
C5	Laptop LCD troubleshooting
C6	Laptop VGA connection troubleshooting
C7	Laptop HDMI troubleshooting

C8   Laptop south bridge troubleshooting
C9   Laptop ieee 1394 troubleshooting
C10   Laptop audio troubleshooting
C11   Laptop Lan troubleshooting
C12   Laptop sata/ pata troubleshooting
C13   Laptop odd/ cd DVD connection troubleshooting
C14   Laptop USB troubleshooting
C15   Laptop Esata   troubleshooting
C16   Laptop PCMCIA troubleshooting
C17   Laptop I/O chip troubleshooting
C18   Laptop touchpad troubleshooting
C19   Laptop keyboard troubleshooting
C20   Laptop bios troubleshooting
C21   Laptop bios password troubleshooting
C22   Laptop debug card post code errors
C23   Laptop camera not work
C24   Laptop modem troubleshooting
C25   Laptop card reader troubleshooting
C26   laptop wi fi troubleshooting

CHP 25. FLOW CHARTS FOR FAULT FINDING STEPS:
CHP 26. DISCUSSION STUDENT PROBLEMS AND SOLUTION:

MODULE L3.4

BGA CHIP REPLACEMENT AND REBOLLING

CHP 27. REMOVING AND INSERTING DIFFERENT CHIPS PRACTICE (VIDEO & STEP):

a. Instrument Demo And How To Used
b. Removing Process Of Chip

Chp 28. USE OF BGA MACHINE, TEMPERATURE SETTING:

Chp 29. BGA REBOLL , REWORK PRACTICE:

Chp 30. DEMO FOR OTHER PRODUCT:

MODULE L4

ADVANCE ENGINEARING LEVEL LAPTOP CHIP LEVEL TRAINING

MODULE L4.1

ENGINEERING LEVEL ADV. LAPTOP MOTHERBOARD REPAIR TRAINING

CHP 1. REVISION OF LAPTOP MODULE 2 CONCEPT OF POWER ON SEQUENCE, VRM , BIOS:

CHP 2. UNDERSTANDING DIFFERENT MODELS & (ODM) ORIGINAL DEVICE MANUFACTURE OF SCHEMATIC DIAGRAM:

1. Quanta 2. Compal 3. Wistron 4. Inventec 5. Asus 6.Uniwillmitac 7. Foxconn. Samsung 9. Arima
ODM Manufacture Details, Tracing Different Signals

CHP 3. UNDERSTANDING BOARD VIEW OF LAPTOP MOTHERBOARD (Allegra Free Viewer, Board view, B view, Cast W, BRD-T):

CHP 4. UNDERSTANDING IMPORTANT SIGNALS OF LAPTOP MOTHERBOARDS:

a. Clock Generator , CPU Processor, North Bridge of Graphics Card, South Bridge Main Power Chip 5v, 3v, Secondary Power Supply Chip 2.5, 1.5v
b. CPU Power Supply Chips
c. Charge Discharge Control
d. LCD Back Light Ram, Main Signals of LAN Chip, Main Signals of Audio Chip
e. Main Signals of Keyboard
f. Main Signals of LCD

CHP 5. UNDERSTANDING DIFFERENT SECTION IN DEPTH AND HOW IT'S ENABLE:

a. Primary, Secondary Charging, Vrm
b. Discharging, Signals, Reset , Bios
c. Clock Generator
d. Other Main Signals Tracing On Board

CHP 6. PRACTICAL TRAINING WITH TRACING DIFFERENT LAPTOP BOARD FOR MORE CONFIDENCE IN LAPTOP MOTHERBOARD REPAIRING:

a. Dell Model
b. HP Compaq Model
c. Toshiba Model
d. Acer Model

CHP 7. Some of Common Fault of Laptop Models

Practice on Different Motherboard Tracing and Fault Finding.

Laptop Motherboard Power On Details

a. Main Signals of Some Motherboards of HP, Dell, IBM and Lenovo
b. Advance Signals Details
c. HP/Compaq : VIN 3VPCU 5VPCU, NBSWON, DNBSWON, SUSC, SUSB, S5-On, SUSON, Main-On, VRON On, HWPG, PWROK, RSM_RST, PCIRST, CPUINIT, CPUPG, CPURST, VID 0-5
d. Dell: PWRSW, PWRBTN, SLP-S3, SLP-S5, SUSCLK, RUNON, RUNPWROK

e. Tracing A Different Dead Motherboard
f. CRO &Multimeter Used And Tracing
g. Cold Checking & Hot Checking

MODULE L4.2

HIGH END INSTRUMENT PRACTICE

CHP 8. TYPES OF LAPTOP PASSWORD, BIOS PASSWORD, ADMIN PASSWORD, USER PASSWORD, HARD DISK PASSWORD , PASSWORD RESET CONCEPT:

CHP 9. HOW TO FLASH BIOS OF LAPTOP CHIP ONLINE AND OFFLINE:

CHP 10. USES OF DIFFERENT REPAIRING & TESTING INSTRUMENT:

a. DDR Ram Slot Tester
b. CPU Slot Tester
c. Mini Wi-Fi Slot Tester And Signals Detail
d. Mini PCI Slot Tester
e. IDE Slot Tester
f. Used of Different Debug Card

MODULE L4.3

REPAIRING CONCEPT WITH DIFFERENT LAPTOP FOR PRACTICE

CHP 11. LAPTOP COMMON FAULT LIST & REPAIRING STEPS CONCEPT

CHP 12. REMOVING AND INSERTING BGA CHIPS PRACTICE ON HIGH END MACHINE

a. Reballing
b. Fully Practice With BGA Reballing And Reinserting Different Chip
c. Graphics Chip Solution NVDIA, ATI,
d. Reballing Process By PPD/ Stencil/ Balls
e. Practice With Outside Motherboard Repairing
f. Customer Motherboard Repairing Practical Knowledge
g. Practice On Students Self Motherboard

CHP 13. WORKING WITH STUDENT / SERVICE CENTRE LAPTOP REPAIRING (LIMITED)

CHP 14. REQUIREMENT FOR A LAPTOP SERVICE CENTRE LIST

CONTACT

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