

Innovative Engineering Technologies

Advance Laptop Chip Level Repair Engineering Training Course

TIME TABLE

New Intel Core 2 Duo to Intel 8th Gen Upgraded Syllabus (2022 - 2023)

THEORY		PACTRICAL	
1 st Day	<p>i) SMD BASIC ELECTRONICS</p> <p>Fundamentals – what is AC/DC, Current, Ampere, Watts Types Of Circuits.</p> <p>What is OVP, OCP, OTP, TVC, THERMTRIP & PWM Circuits ..</p> <p>ii) What is Comparators & Basic Application Circuits</p> <p>iii) What is Converter Basic Application Circuits (Buck & Boost Converters)</p>	1 st Day	<p>i) SMD Type Of Components (Identify SMD Type Active & Passive Components)</p> <p>ii) Capacitors What is Filter Capacitors What is Coupling Capacitors What is Resonance Capacitors</p> <p>iii) Resistors What is Pull-up resistance & Pull-down resistance What is Resistor Dividers & Protection resistors,</p> <p>iv) What is EIA 96 Resistors , Inductors, Zero Ohm Fuses, Diodes Enhanced Transistors, Dual & Enhanced Mode MOSFETS, On board & Offline Testing Using Smart Electronic Tester Tools.</p>
2 nd Day	<p>i) ADVANCE SMD DIGITAL ELECTRONICS.</p> <p>Type of Digital Numbering Systems Bit, Byte, Binary, Octal, Hexa Conversion of Number systems.</p> <p>Type of SMD Gate ICs .</p> <p>AND, OR, NOT, NAND, NOR. Etc..</p> <p>ii) What is Schmitt Trigger,</p> <p>iii) What is Tri state gate,</p> <p>iii) What is Transitions Pulse.</p>	2 nd Day	<p>i) Find out 5 pin & 6 pin Gate ICs In Laptop Motherboards</p> <p>ii) HOW TO SOLDERING ,DISOLDERING OF ALL COMPONENTS USING COMPRESSOR TYPE HOT AIR STATIONS WITH REAL TEMPERATURE PROFILS WITH DEFERENT SKILLS .</p> <p>iii) What is IR PRE HEATER. How Motherboard All Connectors & Slots Removing & Replacing .</p> <p>iv) How Use Micro Tips & Soldering Irons ,Special Bits</p> <p>v) What is Soldering Paste Types . (pb /pb -free / HF)</p> <p>vi) How to Solder and How Protect our Health with Chemicals .</p> <p>vii) How to Use Smart Microscopes ,Handling Practice Carefully & Tiny Chips Soldering Disordering .</p> <p>Mono ,Stereo ,TFT Screen Types & High Definition PC Control Types .</p>

3 rd Day	<p>BASIC KNOWLEDGE OF LAPTOP PARTS AND ASSEMBLE DISASSEMBLE HARDWEAR & ELECTRONICS IN DEPTH.</p>	3 rd Day	<p>i) HOW TO FULL SERVICE ANY LAPTOP STEP BY STEP CHANGING & REPLACING BELOW COMPONENTS.</p> <ul style="list-style-type: none"> Identify Computer Hardware & Parts & Details . Difference between Laptop and Desktops ASSEMBLE & D-ASSEMBLE Parts Identification Demo with Proper Original Specific Tools Sets. Motherboard:= What is Block Diagram and Schematic Identify CPU , Types, CPU GEN Identify KEYBOARD = Types, Working Concept .Replacing HARD DISK = Types, Storage Concepts, Basic Problems RAM = Types, Working Concept, Basic Problems CD/DVD/DL = Types, common fault . TFT/LCD Panel:= Type of LCD, TFT /TOUCH, size, pins INVERTER:= Usage of Concept of Inverter ,CCFL ,LED & OLED Panels. KEYBOARD / SCIENTIFIC TOUCHPAD REPAIRING. <p>ii) LAPTOP POWER ADAPTER REPAIRING</p> <ul style="list-style-type: none"> Laptop Power Adaptor Working Concept , What is Basic & Smart Pin Adaptors Advance S.M.P.S Repairing Concept with Cool Mos Topology, What is Original Smart Power Adaptor . How Smart Pin Adaptor Programming. --HP,DELL, APPLE ,LENOVO.--
4 th Day	<p>LAPTOP MOTHERBOARD ADVANCE REPAIRING:-</p> <p>i) BLOCK DIAGRAM OF LAPTOP MOTHERBOARDS</p> <p>ii) BASIC POWER SIGNALS DETAILS</p>	4 th Day	<p>i) IDENTIFY LAPTOP MOTHERBOARD SCHEMATICS BLOCK DIAGRAMS MANUFACTURAL ARCHITECTURE WISE GENERATIONS</p> <p>INTEL / AMD / NVIDIA / APPLE</p> <p>ii) IDENTIFY LAPTOP MOTHERBOARD REAL FOUNDRY MANUFACTURES WITH HOW RIGHT WAY FOR SCHEMATIC READINGS...</p> <ul style="list-style-type: none"> Quanta Compal Weft Chuang Inventec Pegatron United Samsung Apple Other Manufactures <p>iii) Identify Any Laptop Motherboards Adaptor Power Driving Circuits With Working Concept .</p> <p>iv) What is LDO Voltages & How there Logics.</p> <p>v) How to Find LDO Power Short Circuits Fault Repair.</p>

<p>5th Day</p>	<p>i) LAPTOP MOTHERBOARD POWER ON SEQUENCE</p> <p>ii) SOME IMPORTANT POWER SIGNALS</p> <p>NAME & IDENTIFY</p>	<p>5th Day</p>	<p>i) UNDERSTANDING WORLDWIDE IEEE STANDED LAPTOP POWER STAGES</p> <p>ii) What is ICH,GMCH ,PCH, IVY BRIGE CHIPSET TYPES</p> <p>iii) What is HASWELL ,BROADWELL, BRASWELL Architecture wise Chipset Types.</p> <p>iv) What is PWM Buck Controller Power Supplies Advantages .</p> <ul style="list-style-type: none"> • 1st Power stage 5v, 3v (Always On) or 1.8v • 2nd power stage 1.8v 1.5v ,1.35v /1.3v • 3rd power stage VRM CPU CORE 1.1v • 4th power stage GFX CORE 1.1v/0.45V • 5th power stage SUS 3.3v/5v <p>POWER DISTRIBUTE DIFFERENT CHIPS</p> <p>5V,3V REG & LDO ,VDDQ,VTT,VCCSA,VCC CORE, 5V/3V SUS, 1.5V, 1.8VSUS, 5V, 2.5V ,</p> <p>v) Understanding different power stages and different Signals.</p>
<p>6th Day</p>	<p>ADV. LAPTOP CHIP LEVEL LATEST BIOS EDITING & PROGRAMMUING REPAIRING TRAINING</p>	<p>6th Day</p>	<p>i) What is RTC Circuit with or without CMOS Power.</p> <p>ii) What is Serial & Parallel Data Communications .</p> <p>iii) How Identify Chip Select Command & SM Bus Communication Topology.</p> <p>iv) What is EC Bios POST Booting ,Secure Boot Settings AHCI & UEFI BIOS Boot Settings.</p> <p>v) How to Extract Rom.Bin,Hex File From Manufacture Original exe Bios File.</p> <p>vi) Advance BIOS Programming , Editing With UEFI Tools</p> <p>vii) New Gen Bios Bins What is Region Settings & Intel Clean ME (Any Bios Editing , ME Region Editing's with Intel Official Tools.)</p> <p>viii) How to Flash Bios of Laptop Chip Online or Offline Using Advance BIOS Programmers.....</p> <p>ix) Programming Advance BIOS Programmer Firmware Chips 3.3v & 1.8v.with ICSP.....</p> <p>WHAT IS MICROCONTROLLER TYPE SUPER IO CHIPS</p> <p>i) Understanding Temperature Controller & Fan PWM Controller Circuits.</p> <p>ii) KBC Tracing Programming ,Bios Password Removing ,TPM Unlocking & Fault Finding...</p> <p>iii) KBC Programming On Board Or Separate ,Serial & Parallel Methods Using Advance KBC Programmers....</p>

7 th Day	ENGINEERING LAPTOP MOTHERBOARD BGA LEVEL REPAIRING TRAINING	7 th Day	<p><u>BGA LEVEL REPAIRING TRAINING USING DARK INFRARED SIX ZONE BGA STATION MACHINE</u></p> <p>What is BGA Chip, BGA Station & BGA CHIP Anatomy Removing BGA Chips and Reballing It Using Reball Stencil</p> <p>Chipset ICS Reballing ,BGA Ball Arrangements Using BGA Reballing Station Stencils & Practice</p> <p>How to Find Lead /Lead free / Halogen Free Soldering Methods & Temperature Profiles Creations</p> <p>Two methods i) Applying balls with help of BGA Reballing Station ii) Applying liquid paste and Direct Heat with BGA blower</p> <p>BGA IC Removing Practice, Component Practice, Dark Infrared BGA Machine, Removing chip to Reball, Reballing to Chip Using Different Method, BGA BALL Arrangement, BGA Soldering Station, Using Liquid Lead free Paste, Solder Bath Tub, Removing Sockets, Connectors.</p>
8 th Day	ENGINEERING LAPTOP MOTHERBOARD REPAIR TRAINING UNDERSTANDING DIFFERENT SIGNALS OF MIXED SIGNAL OSILASCOPE (OCR & MSO TRAINING) Part I PRACTICE WITH ADVANCE TOOLS	8 th Day	<ul style="list-style-type: none"> • Main Logic Signals of Power Supply Chips • Main signals of Charge discharge control –chip • Main Logic signals of MAIN POWER CHIP 5V, 3V • Main signals of Power Supply Chips 1.5V,1.8V • Main signals of memory power supply • Main signals of CPU power supply chips • Main signals of LCD back light control <ul style="list-style-type: none"> • Main signals of Ethernet chips • Main signals of Sound audio Chip • Main signals of Other Common chipsets
9 th Day	UNDERSTANDING DIFFERENT SIGNALS OF MIXED SIGNAL OSILASCOPE DIFFERENT MOTHERBOARDS Part II	9 th Day	<p>i) WHAT IS INTEL POWER MANAGEMENT TIMING SEQUENCE IEEE MODE</p> <p>FAULT FINDING WITH MIXED SIGNAL OSILASCOPE</p> <ul style="list-style-type: none"> • Main signals of clock generator • Main signals of CPU Processor • Main signals of North bridge • Main signals of Graphics Card • Main signals of South Bridge • Main signals of IO/Power Management Chip • Main signals of CPU IVY Bridge , • Main signals of Intel CPU Haswell ,Broadwell , Braswell ,Kaby Lake ,Coffee Lake Processor Chipsets (5th GEN to 8th GEN) <p>CLOCK GENERATOR /GPU PROCESSOR/ CPU TEMPERATURE CONTROL/ NORTHBRIDGE CHIPS/ GRAPHIC CHIPS/ SOUTHBRIDGE CHIP/ IVY BRIGE ,HASWELL ,BROADWELL ,BRASWELL CHIPSETS FOULT FINDING TEST POINTS Mini PCI Slot, NGFF Slot & Debug Ports Troubleshooting .</p>

13 th Day	<p>ADV. LAPTOP BATTERY CHIP LEVEL REPAIR TRAINING .</p> <p>ADV. LAPTOP RAM CHIP LEVEL REPAIR TRAINING .</p>	13 th Day	<p>i) LAPTOP BATTERY'S , DESKTOP & LAPTOP RAMS Repairing</p> <ul style="list-style-type: none"> •LAPTOP SMART OR NON SMART BATTERY Repairing & Programming using with <p style="text-align: center;">Smart Battery Analyzer & Tester ..</p> <ul style="list-style-type: none"> •Types of Battery's , Pin out Detail ,Inside battery Main Board Repairing & Battery Cells Replacing.. • LiPo battery Problem Repair test with LiPo Battery Balancer <p>ii) Battery EEPROM Repairing/ Resetting Practice Erase & Programming Battery EEPROMs</p> <p>iii) RAMs Repairing DDR 1/2/3/4 Chip Level Ram Repairing RAM EEPROM Programming (SPD FLASHING)</p> <p>iv) LCD SCREEN LVDS BOARD Repairing :- LCD/TFT Panels Screen FW- EEPROM Programming , LED Backlight Inverter & eDP to LVDS Board Chip level Repairing.</p>
14 th Day	ENGINEERING LAPTOP MOTHERBOARD REPAIRING TRAINING	14 th Day	<p>i) Understanding Any Laptop Battery Charging / Discharging Section & Repairing.</p> <p>ii) Troubleshooting and Repairing Not Charging any Type Laptop</p> <p># Plugin Not Charging # Plugin Charging Battery Not Detecting</p> <p># Etc..... 27 Nos Faults.....</p>
15 th Day	<p>TRACING DIFFERENT CONNECTORS AND SOCKET WITH PINOUT DETAILS</p> <p>CPU /WIFI /NGFF /USB SLOT TESTER</p>	15 th Day	<ul style="list-style-type: none"> • Main signals of CPU slot • Testing point of CPU slots • MINI WIFI SLOT TESTER AND SIGNALS DETAIL • Main signals of WIFI slot • Testing point of WIFI slots • MINI PCI SLOT TESTER • IDE SLOT TESTER • USED OF DIFFERENT DEBUG CARD • Advance models tracing with different signals • Different motherboard advance tracing <ul style="list-style-type: none"> • FOULT FINDING AND TROUBLESHOOTING OF MOTHERBOARDS. •

16 th Day	TRACING DIFFERENT SIGNALS	16 th Day	<p>i) TRACING A DIFFERENT DEAD LAPTOP AND ALL IN ONE MOTHERBOARD.</p> <p>Cold Checking & Hot Checking</p> <p>PRACTICE WITH SHORTCUT REPAIR TIPS & OUTSIDE MOTHERBOARD REPAIRING CUSTOMER MOTHERBOARD REPAIRING PRACTICE KNOWLEDGE</p> <p>PRACTICE TRAINING WITH DIFFERENT MOTHERBOARD HAVING MORE CONFIDENCE IN LAPTOP MOTHERBOARD REPAIRING...</p>
17 th Day	STORAGE DIVICE REPAIR & TRABLESHOOTING FAULT FINDING	17 th Day	<p>i) HDMI ,DISPLAY PORTS , USB 3.1 ,IEEE 1394 FIRE WIRE, SPDIF Audio Connection, RTC, I/O Controller KBC, CD Rom Connection, HDD Connection, VGA Connection , Key Board Connection, Touchpad Connection, Power Board DVD Panel I/O Out Tracing ...</p> <p>ii) What is Hard Disk Data Storage Concept & HDD Motherboard Repair & Data Recover .(Logic Board Level) SATA/MSATA/SAS/SSD</p> <p>CAN STUDENTS BRING LAPTOP MOTHERBOARD TO PRACTICE TO DEDICATED PRACTICAL DAY AND REPAIR IN THE CLASS ROOM .</p>

Course Conduct by :- **Mr. Indika Bandara**

(Desktop Computer & Laptop Motherboards SMT Level Manufacturing Plant Engineer)

Course Duration :- **04 Month** (18th Sundays Full days) (9.00 AM -5.00PM)

Course Fee :- Rs.80,000/-

IET Institute Student Registration Fee :- Rs. 1,000/-

Notice :- * All Participations Must Completed Basic Electronic Course First . *

Please Complete the Payments Before Starting the Class Day.....

- Original **Intel 7th Gen to 10th Gen Laptop Schematics**, Working Bios Bins Database & Very Valuable Software's, Diagrams Free With life time www.iet.lk web Site Membership.
- Dell, Hp, Intel, Asus, Toshiba .Lenovo,Sony,Panasonic and etc...
- A 'certificate of participation' will be issued to each participant.
- Two Tea time and refreshment included .
- A/C Class room Facilities