

SESSION	LAPTOP LEVEL-2 SYLLABUS	CLASS
	WEEK -1	
1	<p><u>What is motherboard? And Laptop motherboard blockdiagram explain</u> a) Laptop Motherboard Block Diagram -Explain b) What is difference between dual core board and core i5, i7 board? c) Motherboard chip level service tools list</p>	Tips
2	<p style="text-align: center;"><u>Basic electronics</u></p> <p><u>introduction</u> what is difference between electrical and electronics What is current and volt? What is difference between AC and DC? AC current/volt-DC current /volt Difference between normal electronics and SMT electronics What is multimeter? How use multimeter?</p>	PRACTICAL
3	<p><u>RESISTOR</u> What is resistor and its working function? Types of resistor Resistor colour coding Difference between normal resistor and SMT resistor How find smd resistor value? And its checking method</p>	
	<p><u>CAPACITOR</u> What is capacitor and its working function? Types of capacitor Difference between normal capacitor and SMT capacitor How find capacitor value? And its checking method</p>	
	<p><u>Student soldering practical-resistor and capacitor</u></p>	
4	<p><u>INDUCTOR AND TRANSFORMER</u> What is inductor and its working function? Types of inductor Inductor checking method What is transformer and its working function? Types of transformer transformer checking method</p>	
5	<p><u>DIODE</u> What is diode and its working function? Types of diode Difference between normal diode and SMT diode diode checking method</p>	
6	<p><u>TRANSISTOR</u> What is transistor and its working function? Types of transistor-mosfet,Fet,PNP and NPN Difference between normal transistor and SMT transistor transistor checking method</p>	
7	<p><u>Students soldering practice</u> Mosfet and diode</p>	
8	<p><u>Integrated circuits [IC]</u> What is ic ? and its working function? Types of ic Various packages of ic</p>	

	Smd double side ic removing and fixing by using SMD REWORK STATION Smd four side ic removing and fixing by using SMD REWORK STATION	
WEEK-2		
9	<p>How to Solve Laptop Power Adapter Problem? - Practical</p> <ul style="list-style-type: none"> ✓ Laptop Battery Charging Slowly ✓ Laptop are not power on ✓ No output voltage for adapter [0 volt] ✓ Less output voltage for adapter [16v/17v] ✓ Adapter over heating ✓ Earth shocking problem <p>Power Section-How Laptop Power Section Works?</p> <ul style="list-style-type: none"> ✓ How super IO ic works? And its function-Block diagram ✓ How motherboard power on? ✓ How work battery section and step- down Voltage regulator section? 	PRACTICAL
10	<p>Adapter V In Section [AC -Mode] -Practical</p> <ul style="list-style-type: none"> ❖ Problem: Not power on Laptop both battery power and adapter power mode [Laptop Dead] • Symptoms: power LED are not glowing /FAN are not rotate, • When plug in adapter to laptop then OFF adapter power LED>>>> • After unplug adapter from laptop then adapter indicator LED is ON. • When plug in adapter >>>then the adapter indicator LED is blinking. <ul style="list-style-type: none"> ✓ Battery Terminal pin outs ✓ Battery charger IC pin outs and its function ✓ Adapter Voltage [VIN] IN circuit tracing/fault finding method and its troubleshooting tips ✓ Battery Charge Line tracing/fault finding method, and its trouble shooting tips 	PRACTICAL
11	<p>Battery Charging Section [Charge Mode]-Practical</p> <ul style="list-style-type: none"> ❖ Problem 1: Laptop working by Adapter power mode only, but are not charging battery /and are not working battery power mode <p>Symptoms: <i>Battery Charge Led Are Not Glowing/plugged in not charging</i></p> <p><i>Problem 2: laptop battery charging very slowly and charge percentage are not increase</i></p> <p><i>Problem 3:after remove battery from laptop >then laptop working properly through adapter power>then connect battery to laptop >are not power on laptop both power mode</i></p> <p><i>Problem 4: laptop battery power quickly discharged >quickly goes low battery level</i></p> <p><i>Problem 5: when power on laptop >power LED is glowing and fan are rotating >now battery LED is blinking continuously [on then off] then suddenly off laptop power</i></p> <p>DC mode</p> <ul style="list-style-type: none"> ✓ Battery Power Terminal [Discharge Line] tracing /fault finding method and its trouble shooting tips ✓ PMOS and NMOS charging circuit comparison 	PRACTICAL
	<p>STUDENT PRACTICE</p> <p>Adapter vin circuit and battery charging circuit [AC mode,DC mode and Charge mode]</p>	
WEEK-3		
12	<p>Step-Down Regulator Section</p> <p>MAIN STEP-DOWN VOLTAGE REGULATOR CIRCUIT [3.3V & 5V]</p> <p>Circuit Fault Finding/Tracing and its Troubleshooting Tips</p>	PRACTICAL

	<ul style="list-style-type: none"> ✓ a) What is step down regulator section problem? [laptop power fail or dead board] ✓ b) step-down ic pin outs and its function ✓ c) What is always power? 	
	<p>Student practice Step down regulator circuit</p>	
13	<p>CPU V core circuit fault finding -practical CPU Voltage Regulator Section Circuit Fault Finding/Tracing and its Troubleshooting Tips [below 1.5V]</p> <ul style="list-style-type: none"> ✓ a) What is cpu regulator circuit problem? (Power on laptop > fan are rotating > then suddenly board is off and cpu over heating problem) ✓ b) cpu circuit N-mosfet connectivity explanation <p>b) cpu circuit Mosfet and capacitor checking method</p>	PRACTICAL
	<p>Student practice CPU V core circuit fault finding</p>	
14	<p>MEMORY [DDR1/DDR2/DDR3] VOLTAGE REGULATOR SECTION Circuit Fault Finding/Tracing and its Troubleshooting Tips [2.5V/1.8V/1.5V]</p> <ul style="list-style-type: none"> ✓ What is memory regulator circuit problem? ✓ a) power ok > fan are rotate but no display both LCD screen and external monitor ✓ b) Power on laptop > fan are rotating > then suddenly board is off 	PRACTICAL
15	<p>CHIPSET VOLTAGE REGULATOR SECTION Circuit Fault Finding/Tracing and its Troubleshooting Tips [1.5V/1.05V]</p> <p>a) What is chipset regulator circuit problem?</p> <p>b) Power on laptop > the chipset produce abnormal heat > then board is suddenly off [BGA chipset short]</p> <p>c) Poor display for both LCD screen and external monitor {BGA chipset weak}</p> <p>d) No display for both LCD screen and external monitor [BGA chipset fail]</p>	PRACTICAL
16	<p>STUDENT PRACTICAL Ram and chipset voltage regulator circuit</p>	PRACTICAL
WEEK-4		
17	<p>Laptop motherboard voltage checking method for power fail laptop motherboard [motherboard Dead]</p> <ul style="list-style-type: none"> ✓ a) How check adapter volt power line [19V]? ✓ b) How check battery terminal volt in laptop motherboard [12V]? ✓ c) How check always volt in power button and IO chip near? <p>d) Where to check regulated output voltage [3V/5V/1.5V/1.05V and cpu voltage]?</p>	PRACTICAL
18	<p>LAPTOP -No Display Problem-PRACTICAL Laptop Power ON ok /power LED is Glow and CPU cooler FAN is Rotating continuously.....but No Display Problem for Both LCD screen and External VGA</p> <ul style="list-style-type: none"> ✓ How check Northbridge Video chipset voltage? ✓ How check south bridge chipset voltage? ✓ How check DDR1/DDR2 & DDR3 RAM voltage? ✓ Latest i5/i7 cpu motherboard complete voltage checking method 	PRACTICAL
19	<p>Clock Frequency Checking-CRO Practical No Display Problem for Both LCD screen and External VGA</p> <ul style="list-style-type: none"> ✓ What is clock and frequency? [HZ/KHZ/MHZ] ✓ How check system clock crystal frequency by CRO [14.3 MHz]? ✓ How check system clock generator clock output frequency? 	PRACTICAL
20	<p>BGA REWORK PRACTICAL No Display Problem for Both LCD screen and External VGA</p> <ul style="list-style-type: none"> ✓ BGA CHIPSET Dry soldering method ✓ BGA chip replacement by using BGA Rework Machine 	PRACTICAL

	<ul style="list-style-type: none"> ✓ BGA chip reballing method 	
21	<p><u>LCD Screen Power Supply Section</u> <u>No display problem only LCD screen but external VGA monitor ok</u></p> <ul style="list-style-type: none"> ✓ LCD Screen power supply circuit fault finding /circuit tracing and its trouble shooting tips ✓ No LCD signal and no Backlight problem ✓ LCD signal OK but No backlight problem [Black screen] ✓ No LCD signal but backlight ok problem [white screen] ✓ LCD screen vertical lines problem ✓ What is difference between LED and CCFL Backlight? ✓ Backlight CCFL inverter circuit function 	PRACTICAL
22	<u>STUDENT PRACTICAL</u>	PRACTICAL
23	<p><u>BIOS FLASHING METHOD -Practical</u></p> <ul style="list-style-type: none"> ✓ What is BIOS? ✓ Why reprogram BIOS? [Password problem/Bios Rom checksum error message/laptop not booting problem/no display problem/post Error message problem and Etc...] ✓ Bios chip pin outs and capacity identification ✓ Bios file backup method using Bios Programmer kit 	PRACTICAL
24	<p><u>Audio section problem -practical</u></p> <ul style="list-style-type: none"> ✓ No any sound signal for laptop [audio driver and sound setting is ok] ✓ Speaker /microphone and head phone are not working ✓ Head phone and mic are working but speaker no sound signal ✓ Speaker sound signal is very low ✓ Poor sound [distortion] signal for speaker ✓ Left side speaker ok but right side speaker no sound signal <p><u>USB power circuit problem and its troubleshooting</u></p> <ul style="list-style-type: none"> ✓ How solve USB Port not working problem -practical ✓ Laptop online reference website [laptop board circuit/BGA chip/power ic/io ic /mosfet and etc] ✓ Laptop motherboard parts and tools shop address list collection 	PRACTICAL
25	<u>Students practical</u>	