

SYSTEMS MANAGEMENT AND MAINTENANCE

1. Computer Parts Familiarization/Intro to computer

a. Motherboard-4major Components

- i. Socket
- ii. Slots
- iii. Connectors
- iv. Ports

b. Parts of the system unit

- i. Case/ Chasis
- ii. PSU-Power Supply Unit
- iii. Motherboard (CPU, RAM, Heat Sink & Fan)
- iv. Expansion Cards (GPU/Video Cards, PCI Cards)
- v. Storage (SSD/HDD) Sata
- vi. ODD-(cd,dvd,blue-ray)

c. Parts of Desktop Computer

- i. Monitor
- ii. System Unit
- iii. Keyboard
- iv. Mouse
- v. Speaker
- vi. AVR-Automatic Voltage Regulator/ UPS-Uninterruptible Power Supply
- vii. Printer (optional)

d. Standard Computer/PC Assembly

- I. Power Supply Unit to CASE / Chassis
- II. Motherboard (CPU, RAM, Heat Sink & Fan) To CASE/Chassis
- III. Expansion Cards (GPU/Video Cards, PCI Cards)
- IV. Storage (SSD/HDD) Sata
- V. ODD-(cd,dvd,blue-ray)
- VI. Connect All wirings

e. Front Panel

HDD LED	1 is +	3 is -
RESET SW	5 is -	7 is +
Power Led	2 is +	4 is -
Power Switch	6 is +	8 is -
No Connection	Dummy	NO PIN



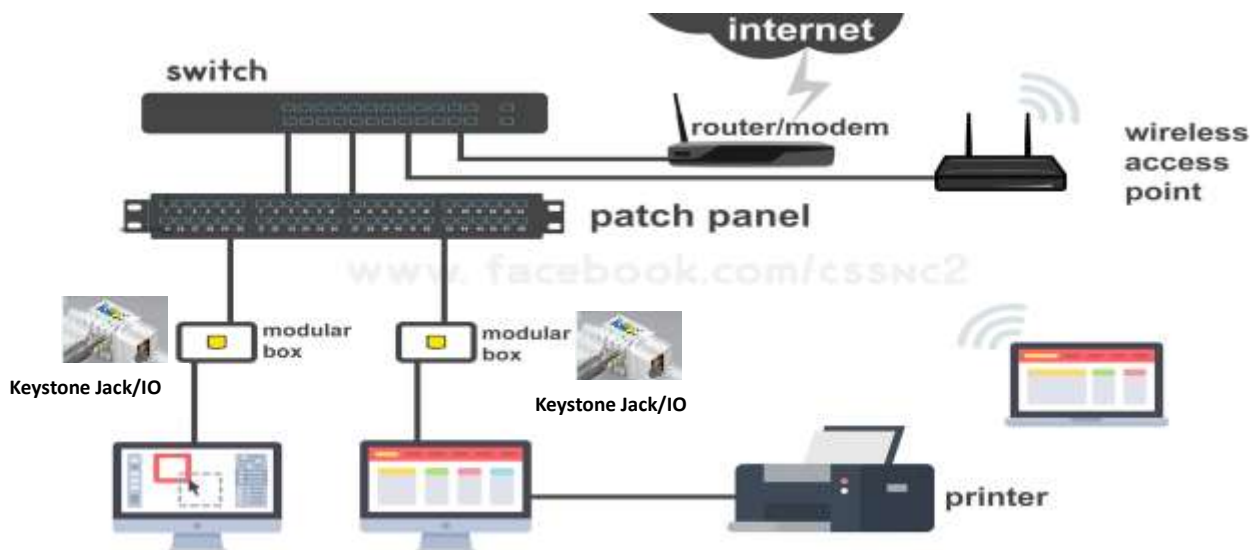
2. Windows Operating System Installation

a. Create bootable flash drive

- i. 16Gb Flash Drive
 - ii. Windows ISO Image
 - iii. Rufus
 - iv. Extra laptop/Desktop
- b. Insert bootable flash drive, Turn on the computer/Switch,
 - i. Go to Bios Setup by pressing F10/F9-HP, F2-Asus, Samsung, Acer, Lenovo, Huawei, Delete, F2-Clone PC or Assembled PC
 - ii. Make USB flash drive as 1st BOOT Priority, Press F10, save and exit
- c. The computer will load the bootable flash drive, a windows will popup User Interface, choose INSTALL, Next, Custom advanced(delete everything)-create partition, (50/50% 250,000mb-250,000) (60/40% 300,000mb-200,000mb) (70/30% 350,000mb-150,000mb)
- d. Click new, apply ok, then last partition number, click new, apply then FORMAT, then ONE step up , click second to the last partition then CLICK NEXT,
- e. Wait until all process done, first restart, remove USB flash drive and wait for Desktop wallpaper to appear (setup, agree, until finished, follow procedures)
- f. In client show desktop ICON by clicking personalized and themes, Date & Time/Time-zone +8 Taipei/Kuala Lumpur/Beijing
- g. Install drivers (Snappy Driver Installer) MOUNT, then click SDI x64, SELECT ALL then click INSTALL (wait all drivers to be installed, then RESTART)
- h. Install Application software (Antivirus, MS Office, Internet Browser (Chrome, Mozilla Firefox, Brave, Safari) PDF reader

Computer Networks

3. Network Diagram



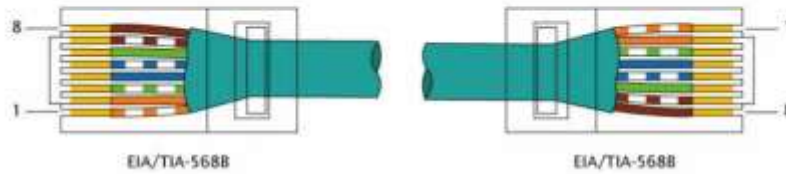
NOTE: ALL CABLES STRAIGHT THRU CABLE

Create LAN/Internet Cable/ Test using LAN Tester

a. T568B- Color Coding

WHITE ORANGE	ORANGE
WHITE GREEN	BLUE
WHITE BLUE	GREEN
WHITE BROWN	BROWN

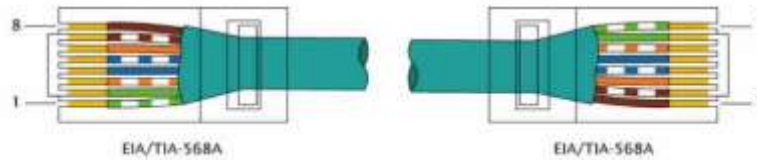
Ethernet Straight-through cable T568B



b. T568-A Color Coding

WHITE GREEN	GREEN
WHITE ORANGE	BLUE
WHITE BLUE	ORANGE
WHITE BROWN	BROWN

Ethernet Straight-through cable T568A



Patch Panel Termination based on the given color coding



Create WIFI Names Using Last name or First name

- Reset Router, get the default gateway by typing IPCONFIG in the command prompt (search or RUN type CMD) ex: 192.168.0.1
- Copy the IP address to the browser, enter credentials (username/password) or create your own password
- Go to Wireless, write your name or last name, setup password security click SAVE
- Configure Access point, Reset, Login the credentials, click OPERATION MODE, select Access Point, write your name or last name, create WIFI password security.

MIDTERM EXAMINATION (scope is Topic 1 ,2, 3)

FINAL TERM

SETUP COMPUTER SERVER

a. INITIAL SETUP/Server and Client

- I. Date/Time/Time-zone +8 Kuala Lumpur, Taipei/Beijing
- II. Turn Off firewall
- III. Network sharing center Turn On everything except Password Protected Sharing
- IV. Allow remote settings
- V. Setup IP address (A, B , C)

SERVER IP CLASS C	
IpV4	192.168.0.2
Subnet mask	255.255.255.0
Default Gateway	192.168.0.1
Preferred DNS	192.168.0.2

SERVER IP CLASS B	
IpV4	128.0.0.2
Subnet mask	255.255.0.0
Default Gateway	128.0.0.1
Preferred DNS	128.0.0.2

SERVER IP CLASS A	
IpV4	127.0.0.2
Subnet mask	255.255.0.0
Default Gateway	127.0.0.1
Preferred DNS	127.0.0.2

Client IP ADDRESS	
CLASS A	127.0.0.3
CLASS B	128.0.0.7
CLASS C	192.168.0.3

- VI. Function Resources, SSDP, UPNP, TURN ON these on SERVICES
- VII. Change name: SERVER, CLIENT (Advanced System Settings, Change Setting, WORKGROUP “CSS”) restart
- VIII. Check Connectivity via command PING (client and server)
- IX. Add ROLES (ADDS-Active Directory Domain Services, DHCP, DNS) Configure the right process, follow Tutorial Instructions based on the PPT presentation
 1. Connect Client to DOMAIN of the Server (css.com)
 2. Create user 1, testuser1
 3. Scope, Organizational Unit, GPO
 4. Test Remote Desktop Connection (server name/ip address)
 5. Folder Redirection (always follow RIGHT Configuration)
- X. Reverse Look up zone, create new pointer
- XI. Print management Services- configure right setup

-Add printer (pre-installed in windows OS) Virtual printer

-Connect configured printer to the client, send test print (see what's printing, QUE)

MAINTAIN AND REPAIR COMPUTER SYSTEMS AND NETWORK

1. Create and Configure Windows Server Backup- add using features

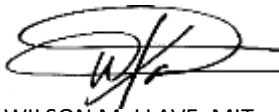
- I. Create backup at least (500mb) save to drive D (or Flash Drive, External HDD, another HDD, Storage)
- II. Delete FILES and RESTORE using backup created

2. Computer Troubleshooting

BASIC/ADVANCED COMPUTER TROUBLESHOOTING and MAINTENANCE

	Computer ERRORS	POSSIBLE CAUSE	POSSIBLE SOLUTION
1.	NO Display upon turning on the switch of the PC BLACK SCREEN	<ol style="list-style-type: none">1. Wirings-Power Chord, VGA cable2. GPU/Video card if installed in the PC3. RAM	<ol style="list-style-type: none">1. CHECK all cable connections, check fault cables by Multimeter /tester or just Trial and error replace cables (VGA & Power chord2. Clean thoroughly GPU—use eraser and paper to clean the gold pins3. Clean thoroughly RAM—use eraser and paper to clean the gold pins
2.	BOD-Blue Screen of Death	<ol style="list-style-type: none">1. HARD DISK- cause by power failure, improper shutdown/ system error2. RAM- error3. CPU error- cause by Overheating HSF4. Video card error5. Motherboard6. VIRUS cause damage to the system	<ol style="list-style-type: none">1. a. Check the health of HDD- SMART check (default by the system, b. Used HDD Sentinel pro (3rd party Software) if the HDD/SSD is good just do files backup and install new OS.2. Ram/memory test (system default), memory test using 3rd party software(DLC Boot), Trial & Error, just replace the RAM and check3. Apply new thermal paste, clean the HSF4. Clean the GPU first, then trial and error, replace the GPU5. Update the BIOS, verified MOBO problem, replace the MOBO6. SCAN the system, install the HDD to another PC, delete all detected virus.7. REFORMAT- Install new OS
3	Intermittent POWER	<ol style="list-style-type: none">1. POWER SUPPLY UNIT2. Motherboard3. GPU/Video card4. OVERHEATING of CPU	<ol style="list-style-type: none">1. Test the continuity of PSU using PSU TESTER/ multimeter, replace brand new PSU2. Clean the MOBO, using brush and blower, liquid thinner using toothbrush, if same problem occurred, just replace brand new or working MOBO.3. Clean the GPU/video card, remove old thermal paste, apply new thermal paste, and check FAN rotation. If same problem occurred, Replaced GPU/Video card4. Clean the HSF, apply new Thermal paste to the top of CPU/processor

4.	NO POWER	<ol style="list-style-type: none"> 1. WIRINGS 2. Power Supply Unit 5. Motherboard 	<ol style="list-style-type: none"> 1. CHECK all cables if properly installed/inserted 2. Test the continuity of PSU using PSU TESTER/ multimeter, replace brand new PSU 4. Clean the MOBO, using brush and blower, liquid thinner using toothbrush, if same problem occurred, just replace brand new or working MOBO.
5	FROZEN DESKTOP/ HANG/LAGGING	<ol style="list-style-type: none"> 1. lack of RAM (low ram capacity) 2. HDD/SSD Error (low health) 3. CPU Overheating 4. Computer Virus Overloaded System Files 	<ol style="list-style-type: none"> 1. Upgrade the Ram capacity 2. Check the health of HDD- SMART check (default by the system, b. Used HDD Sentinel pro (3rd party Software) replace Storage HDD or SSD 3. Apply New Thermal Paste 4. Scan the computer using updated antivirus 5. Used defragmenter, Delete unnecessary files UPGRADE Storage to SSD/Upgrade RAM
6	NO INTERNET CONNECTIVITY, connection problem	<ol style="list-style-type: none"> 1. LAN CABLE 2. LAN port error/damage 3. LAN Driver Software 4. LAN port Disabled Computer Virus 	<ol style="list-style-type: none"> 1. Check LAN cable using LAN Tester (all lights 1-8 working) if problems found, re-crimp the RJ45, replace LAN cable 2. Test the Lan port, check connectivity, update Driver software, if same problem occurred, purchased PCI to LAN, USB to LAN 3. Used the latest LAN driver, Snappy Driver Installer (SDI) driver pack solution, or download the support website of the brand 4. Check of the PORT is disabled, check settings to the device manager (enabled) 5. Scan the whole system, apply latest OS updates 6. CHECK IP address, (use OBTAIN IP ADDRESS, do not used STATIC IP)
7.	NO SOUND	<ol style="list-style-type: none"> 1. Sound/Audio Driver 2. Disable in the Device Manager 3. Grounded/Damage 	<ol style="list-style-type: none"> 1. Update the driver using SDI, download the latest to the manufacturer's website. 2. Double check in the device manager, ENABLED 3. Used PCI to Sound or used USB to Sound



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