



INFORMATION TECHNOLOGY SUPPORT SERVICE

Level II

Learning Guide # 24

Unit of Competence:-	Administer Network Hardware and Peripheral
Module Title:-	Administering Network Hardware and Peripheral
LG Code:-	ICT ITS1 M06 LO7
TTLM Code:-	ICT ITS1 TTLM06 1019

LO7: Maintain peripherals and fix common problems

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Establishing and following regular maintenance schedule
- Replacing consumables and components
- Fixing peripherals unfortunate accident and malfunction
- Monitoring peripheral usage and traffic
- Determining and rectifying failure of peripherals

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:-

- A regular maintenance schedule is established and followed as recommended by peripheral manufacturer.
- Consumables and components are replaced when required.
- Peripheral mishaps (unfortunate accident) and malfunctions are fixed based on procedure.
- Peripheral usage and traffic is monitored and recommend additional peripherals if needed.
- Failures of peripheral services or devices are determined and rectify as required.

Learning instruction:

1. Read the specific objectives of this Learning Guide.
2. Follow the instruction describe below 1
3. Read the information written in the information “sheet 1, sheet 2,sheet 3,sheet 4 and sheet 5” , “in page 3.4.6.7.8.10.11.13.14.16.17.and 18 ” respectively
4. Accomplish the “self-check 1, self-check 2,self-check 3,self-check 4,” “in page 5,9,15,and 17” Respectively
5. If you earned a satisfactory evaluation from the “self-check” proceed to “operation sheet 1” “in page 14 and 15”
6. Do the” LAB “Test in page “19 and 20”

*Your teacher will evaluate your output either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advice you on additional work. But if satisfactory you can proceed to the next topic.

7.1. Establishing and following regular maintenance schedule

Maintenance schedules

Device manuals normally specify maintenance schedules. Some maintenance is **time**-based and other forms are **usage**-based, such as with printer toner, the need to replace which is shown by a warning light on the printer, or in the case of a large network printer with management software, an automatic email may be sent to the administrator. Paper can be considered a time-based consumable because if packets of it are left open for more than a few weeks it can dry or be subject to moisture, humidity or dust. These changes alter the friction between each sheet and contribute to misfeeds and paper jams. It is important estimate replacement times for things such as toner and paper so to ensure stock and minimise user disruption. You do not want to overstock, as some consumables are expensive and subject to falling quality over time. Laser printer developers, for instance, usually have a limited working life.

Reflection activity

- 1 List what you would expect to find in the maintenance schedule that services peripherals in your workplace, or in another workplace to which you have access.
- 2 Compare the actual workplace maintenance schedule with your own list.
- 3 Might you improve the workplace maintenance schedule?

Scheduling maintenance

Many organisations with a preventative maintenance program will have maintenance tasks organised on a schedule. The goal of a schedule is to ensure that regular maintenance occurs. Given the time pressures of working as an IT Support person, a schedule will assist you in organising your workload to ensure that the best possible service is provided to the client.

If a maintenance schedule does not exist, consider designing one. A schedule should simply include:

- 1 each preventative maintenance task that should be completed
- 2 how often the task should be repeated

3 an estimate of the time required to complete the task.

These tasks can then be allocated time in your schedule at the required intervals.

Developing a preventative maintenance schedule

In developing a preventative maintenance schedule, it is important that as an IT Support person you are aware of the main aims of preventative maintenance. They are:

- To meet the needs of the business
- To extend the working life of equipment
- To reduce the amount of emergency downtime caused by faults that can be prevented
- To be practical
- To make the IT system more cost effective.

Cost effectiveness

It is important that any preventative maintenance be cost effective. It is possible to spend significant amounts of time cleaning and testing devices such as keyboards and mice to extend their life. However, the replacement cost of those devices, including the cost of having an inventory of such items on hand, may mean that it is cheaper to purchase new devices rather than extend the life of the existing devices.

Every maintenance issue must be examined from a cost point of view.

Name: _____

Date: _____

Direction: Choose the best answer for the following question, if you have some clarifications – feel free to ask your teacher.

1. One of the following is a part of maintenance schedules
 - A. Time-based
 - B. Software
 - C. Installation
 - D. **Device manager**

2. _____ is same preventative maintenance program will have maintenance tasks organized.
 - A. workstation
 - B. Preventative maintenance
 - C. Configuration
 - D. All

3. The goal of a schedule is to ensure that regular maintenance occurs is
 - A. Given the time pressures of working as an IT Support person
 - B. Assist you in organizing your workload
 - C. Best possible service is provided to the client
 - D. All

4. To do maintenance schedule should simply include
 - A. Each preventative maintenance task that should be completed
 - B. How often the task should be repeated
 - C. An estimate of the time required to complete the task
 - D. All

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points.

7.2 Replacing consumables and components

Purchase and replacement of consumable parts (components, such as batteries and printer cartridges that have delectable life) is your responsibility. If Lenovo acquires or installs a consumable component at your request, you will be charged for the service.

Replace/ Repair Components

Replacing Computer Components

1. Power Supply.
2. Video Card.
3. Motherboard/CPU/RAM.
4. Hard Drives.
5. CD and DVD.
6. Sound Card.
7. Modems and Networks.

In earlier times, processor speed doubled approximately every 18 months, but this is not universally true anymore. So, should you keep the old computer until you either max out the hard drive or it starts making odd noises, or should you automatically upgrade every X number of years? The answer depends on a few factors: How intensively do you use your computer? Do you have a backup computer and excellent backup system in case your current computer fails catastrophically? Do you do processor-intensive computing such as using a speech recognition program to dictate into your translation memory program? All of these factors are important in your decision on when to get a new computer.

Regardless of how often you purchase a new computer, basic digital and physical hygiene can go a long way toward prolonging your machine's life. Especially if you have pets, a thorough cleaning of the inside of your computer's case (make sure to unplug it from all power sources first) can be a worthwhile (if horrifying!) step, as can deleting large/old files that you no longer need. Movies and

music are big culprits on most of our computers, so it's a good idea to go through and purge the ones that you don't want.

If you are one of those translators who likes to get the longest possible life out of your computer, make sure that you have a backup computer (i.e. a laptop or a separate desktop that is in working order) in case your computer either literally or figuratively goes up in smoke. In addition, a reliable computer backup system is critical regardless of how old your primary computer is.

When you decide that it's time to replace your computer, it's worth considering the option of assembling your own computer from parts. This option allows you to put your money into the features that are important to you; for example you might want a lot of processor speed but just adequate audio and video capabilities, or the other way around

Expenditure on computer systems does not stop with the initial purchase of the hardware and software. Various computer supplies and consumables are needed to keep a computer system operating. These include:

- paper for printers, photocopiers and fax machines
- ink and toner for printers, photocopiers and fax machines
- lubrication oil for various machines with moving parts
- spare replacement parts for various items
- storage disks of various kinds, such as floppy disks, tapes and CDs
- cables of various kinds
- cleaning materials
- tools for maintenance purposes

7.2.1 Ink cartridges

An ink cartridge or inkjet cartridge is a component of an inkjet printer that contains the ink that is deposited onto paper during printing. Each ink cartridge contains one or more ink reservoirs; certain producers also add electronic contacts and a chip that communicates with the printer.

7.2.2 Toner cartridges

Toner cartridge: - A toner cartridge, also called laser toner, is the consumable component of a laser printer. Toner cartridges contain toner powder, a fine, dry mixture of plastic particles, carbon, and black or other coloring agents that make the actual image on the paper.

7.2.3 Ribbons

In computer interface design, a ribbon is a graphical control element in the form of a set of toolbars placed on several tabs. The typical structure of a ribbon includes large, tabbed toolbars, filled with graphical buttons and other graphical control elements, grouped by functionality.

7.2.4 Compact Disk

Compact disc is a digital optical disc data storage format that was co-developed by Philips and Sony and released in 1982. The format was originally developed to store and play only sound recordings but was later adapted for storage of data. Usage: Audio and data storage Capacity: Typically up to 700 MiB (up to 80 minutes audio).

Direction: filling the appropriate answer for the following question in the specie provided, if you have some clarifications- feel free to ask your teacher.

1. _____ is a component of an inkjet printer that contains the ink that is deposited onto paper during printing.
2. _____ is the consumable component of a laser printer.
3. _____ is a graphical control element in the form of a set of toolbars placed on several tabs.
4. _____ is a digital optical disc data storage format that was co-developed by Philips and Sony.

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points.

7.3 Fixing peripherals unfortunate accident and malfunction

Speeding up a slow computer troubleshoot basic computer problems

1. Run fewer programs at the same time. Don't have too many programs running at the same time.
2. Restart your computer.
3. Remove viruses and malware.
4. Free up hard disk space.
5. Verify windows system files.
6. Uninstall unnecessary programs.
7. Adjust windows visual effects.
8. Run a disk scan.

Peripheral Failure and Solutions

The first step is to always check the hardware. The cables may be damaged or the USB hub you're using between your PC and the peripheral may not have power.

#1: Problems with a port

If attached peripherals suddenly stop working, check the Device Manager to see if the port itself is to blame. A red exclamation mark (!) means there's an error with the port.

Delete a device from the Device Manager and then reboot your computer. Once your PC is up and running again, install the device driver.

#2: Problems with the port connectors

Especially with PS/2 ports, one or two of those holes could be clogged with dust, causing a loss in connection with the pins. The same thing could happen when the pins on the peripheral connector are damaged.

A USB port can get damaged, too, resulting in no power or connection. A solution would be to use another USB port.

#3: USB standards don't match

Newer USB devices may not run on old USB ports. Most of them would need a 3.0 cable for high-speed processing. If the USB port and device are incompatible, attached peripherals will not work.

#4: Error with wireless keyboard or mouse



Wireless peripherals often rely on the IR or RF controller to work and communicate with a computer. If it doesn't work the first time you use it, you could be using an old operating system. Most wireless PC peripherals need a newer OS Service Pack. So, if you're still using Windows 95 OS or older, an upgrade will fix the problem.

If you're using the current operating system and the wireless keyboard and mouse still don't work, the problem may be an interference with the line of sight or a weak battery. Use the peripherals on other PCs to help identify the cause of error.

If the wireless device has a reset button, use it to reset the device and refresh the connection. It would also help if you unplug the USB wireless receiver and leave it off for about 10 seconds. This will help reestablish the wireless connection once you plug the receiver back into the port.

#5: PS/2 keyboard and mouse not working

See that the device is plugged in the correct port. If the port and cable are color-coded, the keyboard cable should go into the purple-colored port and the mouse into the green-colored port.

Color coding can vary. Try to switch them up and see if doing so helps fix the problem. Follow the same process if the PS/2 connectors are identical in color and you need to identify which one is designated for the keyboard and the mouse.

If the cables are on the right parts and the peripherals still don't work, try to use other devices. The keyboard or mouse may need replacement.

#6: Blocked keys or sensors

Dirt blocking the keys or sensors prevents PC peripherals from responding to commands. Regardless of how much you click on a mouse or press a key, nothing will happen if contact is not established.

#7: Input devices stop working after updates

Following an operating system or software update, one or two of your attached PC peripherals may no longer work. There are several ways to restore a device's functionality.

- **Switch USB ports**

Doing so will force your computer to recognize a device. A computer system usually recognizes a device based on their location or the specific USB port where the device was attached before any updates were made. If the system thinks nothing has changed, it will not reload drivers, resulting in peripherals not working. Thus, the need to switch USB ports.

- **Start in safe mode**

In some cases, a driver in the cache will not load properly after an update. The result is a broken mouse and keyboard ... or so it might appear. With a bit of a system purge in safe mode, the boot will reload drivers and load them properly.

- **Reset the PRAM**

During a firmware update, the PRAM settings of your computer, which include peripheral devices, video settings, startup disk, and audio volumes, may be reconfigured. Reset the PRAM to fix the problem.

Reboot the system and then press and hold down the option-command-P-R keys at the same time. Wait for your computer to reset and chime a couple of times at reboot before you release the keys.

- **Power cycle the entire system**

Faulty settings may occur after an update. Remove a peripheral device from your computer and leave it off for a few minutes. For better results, shut down your computer as well and power cycle it. After 5 to 10 minutes, turn the computer back on and then plug the attached peripherals back in.

#8: Mouse and keyboard stopped working when printer is turned on

- **Ensure efficient power**

This could happen when the USB ports for the keyboard and mouse receive too little power to work because the printer is hogging all of it. Make sure not to connect the printer to a USB hub that is shared by the keyboard and mouse.

Another solution is to plug the devices into different USB ports. Attached peripherals can go at the back of the computer while the printer is plugged in at the front.

- **Fix interference**

Do your keyboard, mouse, and printer all use a wireless connection? They could be interfering with one another, even if one is using radio frequency while the other relies on Bluetooth.

To avoid conflict and establish different frequencies for different devices, switch off the keyboard and mouse. When you switch them back on, they will be forced to reconnect to your computer using a free frequency.

- **Check driver compatibility**

Conflicts between drivers could cause problems with different devices. Communication with your operating system will be effected and will result in devices not working properly. Open Device Manager and check that drivers for peripherals and the printers are updated.

Double click on a device and open the Properties windows. Under Driver tab, check if the option to Update Driver is available. This means a newer version of a driver is available.

- **Reinstall devices**

If you've done all the steps above and the problem persists, you may need to reinstall devices to resolve the issue.

1. Remove the PC-attached peripherals from Device Manager.
2. Any related software must be uninstalled from your computer.
3. Restart the system.
4. Switch on the printer and see that it is connected to your computer and working properly.
5. Reconnect the keyboard and mouse like you're using them for the first time. This reinstalls the peripherals and ensures there are no conflicts.

Direction: filling the appropriate answer for the following question in the specie provided, if you have some clarifications- feel free to ask your teacher.

1. _____ is a connector of external device in computer based on colors.
2. _____ is faulty settings may occur after an update.
3. _____ interfering with one another, even if one is using radio frequency while the other relies on Bluetooth.
4. _____ a driver in the cache will not load properly after an update.

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points.

7.4 Monitoring peripheral usage and traffic

They can also provide warnings about network slowdowns, overloaded servers and other signs **of** trouble so **you** can address problems before they affect staff and patrons. Better understanding **of** long-term trends. Network monitoring tools also create graphs and reports about **network** performance over time.

Network traffic monitoring is the process of reviewing, analyzing and managing **network traffic** for any abnormality or process that can affect **network** performance, availability and/or security.

It is a network management process that uses various tools and techniques to study computer network-based communication/data/packet traffic.

Direction: filling the appropriate answer for the following question in the specie provided, if you have some clarifications- feel free to ask your teacher.

1. _____ is the process of reviewing, analyzing and managing network traffic for any abnormality or process that can affect network performance, availability and/or security.
2. _____ that uses various tools and techniques to study computer network-based communication/data/packet traffic.

Note: Satisfactory rating - 3 points

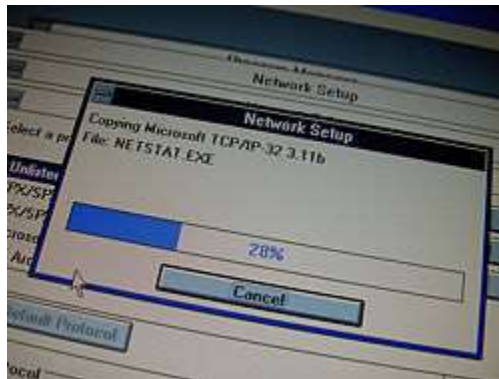
Unsatisfactory - below 3 points.

7.5 Determining and rectifying failure of peripherals

Troubleshooting is a form of problem solving, often applied to repair *failed* products or ... *Determining* the most likely cause is a process of elimination—eliminating potential causes of a problem. ... later renamed MaxServ), immediately show the top 10 solutions with the highest probability of *fixing* the underlying problem.

The most common **causes** of hard drive **failure**: Heat: The primary **cause** of hard drive **failures** is **hardware** overheating. ... Physical damage to your computer: Any type of physical force, such as bumping, jarring, or dropping your computer may lead to physical damage to the hard drive.

How to Fix Common Computer Network Issues



Are you experiencing problems with your computer network? Are these error messages appearing?:

- Unable to clear the DNS cache
- Unable to renew your IP address
- An operation was performed on something that is not a socket
- Unable to clear the ARP cache

If so, here are some potential solutions for Windows XP/Vista.

Steps

1. **Check to make sure your computer is on and is connected to a network.**
2. **Be aware that Windows has a built in function to repair a network connection.** This function can give valuable information in the form of an error message if you know what you are looking for. Some common error messages given are:
 - Unable to clear the DNS cache
 - Unable to renew your IP address
 - Unable to clear the ARP cache
3. **Deal with a message that states "Unable to clear the DNS cache."** When you get the message "Unable to clear the DNS cache", this usually means that the DNS client service has been disabled. Follow these steps as an administrator to re-enable it:
 - a. Open the Services MMC plugin, located under Administrative Tools in the Control Panel;
 - b. Find the "DNS Client" service in the list presented and enter its properties by double-clicking it;
 - c. Change the Startup Type from Disabled to Manual or Automatic then click apply;
 - d. Either reboot or click "Start" to start the service;
 - e. Verify by attempting to repair the connection again.
4. **Fix a problem related to an IP address.** If the repair process reports that it has been 'Unable to obtain an IP address', it is probable that more information can be obtained through the command line. Open a Command Prompt by going to Start > Programs > Accessories > Command Prompt, then type 'ipconfig /renew' to attempt to obtain an IP address from the command line.
5. **Follow up the error messages that will likely appear.** There is a high likelihood of an error message similar to the one below occurring, the remainder of the guide will focus on this error.
 - a. "An operation was performed on something that is not a socket"
6. **Fix the error message "An operation was performed on something that is not a socket.":** This is a Winsock corruption generally due to spyware. The fixes are:

- a. A simple fix can be done with Windows XP SP2 or Windows Vista (Start > Run > cmd > netsh winsock reset), then reboot your computer. If you do not have SP2, you can download a small program to reinstall Winsock: [winsockfix.exe](#).

Lap Test

Practical Demonstration

Name: _____

Date: _____

Time started: _____

Time finished: _____

Instructions: You are required to perform the following individually with the presence of your teacher.

- *Your teacher will evaluate your output either satisfactory or unsatisfactory. If unsatisfactory, your teacher shall advise you on additional work. But if satisfactory, you can proceed to the next topic.*

1. Write the step of how to fix common network problem?

2. Do each step?

List of reference material

1. Book

- Beginners-intro-email-part1.
- Computer Hardware_ Hardware Components and Internal PC Connection.
- Computer Networking & Hardware Concepts.
- Computer-Networks--Introduction_Computer_Networking(1)
- Internet-Access-Education_2017120
- Principles_of_Network_and_System_Administration_(2ed)

2. Web adders links

- www.wikipedia.com
- www.google.com
- web1.keira-h.school.nsw.edu.au/faculties/IT/