



Ethiopian TVET-System

INFORMATION TECHNOLOGY SUPPORT SERVICE

Level I

LEARNING GUIDE # 20

Unit of Competence:	Connect Hardware Peripherals
Module Title:	Connecting Hardware Peripherals
LG Code:	ICT ITS1 L02-LG-20
TTLM Code:	ICT ITS1 TTLM MO6 1019v1

LO 2: Obtain Required Peripherals



Instruction Sheet	Learning Guide # 20
--------------------------	----------------------------

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

- Obtaining peripherals
- Entering peripherals in to equipment inventory
- Delivering components and validating the contents that match the packing list
- Storing 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:-

- Obtain peripherals under instruction from appropriate person/clients
- Enter peripherals into equipment inventory according to organizational standards and procedures
- Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies, if necessary
- Store peripherals according to vendor/manual guidelines of the organization

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4 ” in page 3, 7, 12 and 14 respectively.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3 and Self-check 4 in page 6, 11, 13 and 18 respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1 in page.
6. Do the “LAP test” in page 20.

Page 2 22	Author: Federal TVET Agency(FTA)	IT Support Service Level 1	Date: Oct 2019
			Version: 1

**1.1. Obtaining a Peripherals Devices**

The first step in obtaining a peripheral device is to locate suppliers of that device. Then, there are factors you need to consider about the supplier and the devices on offer, such as support provided and purchase price. This will help you to compare and choose the most appropriate supplier and the exact model of the device according to client requirements. Finally, you are ready to place an order for your organisation or client to purchase the device.

- **Locating a supplier**

There are many ways to find a supplier of peripheral equipment/devices. Some of the ways includes:-

- ✓ **Searching the Internet**

The Internet provides different methods for searching for suppliers. Using search engines such as Google or Yahoo can help you find a hardware supplier anywhere in the world. Suppliers will often have their own websites that can provide you with catalogues of available equipment. Other ways to investigate suppliers are to follow links from a website such as a manufacturer's website, or to browse website directories that may be linked to search engine home pages.

- ✓ **PC magazines**

Computing magazines often contain a large section devoted to advertising current hardware suppliers.

- ✓ **Newspapers**

Major newspapers have computer/IT sections or classified advertisements which can be a source for finding suppliers.

- ✓ **Brochures/advertising material/ Media system/**

Many larger hardware suppliers use television, radio or leaflet deliveries to inform potential customers of their latest hardware.

- ✓ **Telephone directory**



A telephone directory is useful if you need to find a hardware supplier located within your local area.

✓ **Contacting the manufacturer directly**

Manufacturers generally have their own websites. These may list major suppliers in your area. Emailing or telephoning the manufacturer may also be a way to find out names of local suppliers.

1.2. Choosing a supplier

With so many choices of suppliers available, how do you find the right one? There are a few factors to consider:-

- ✓ How long has the supplier been operating? It is a good idea to find a supplier who will still be around for the lifetime of the hardware.
- ✓ Does the supplier offer suitable support and training? If the client will be requiring a lot of additional assistance, training could be a major contributing factor for choosing a particular supplier.
- ✓ Does the supplier offer competitive pricing? Considering the support and stability, it is also important to weigh up these factors in relation to price. For a client with a strict budget, price may be a big issue when determining where to purchase hardware.
- ✓ Is the supplier a preferred supplier for your organization? Some organizations have arrangements that equipment must be purchased from suppliers who are considered to be the preferred provider for the organization. Organisations create these agreements because customer loyalty offers substantial discounts, extended warranties and additional support.

1.3. Selecting a peripheral

Once you have selected suitable suppliers you need to contact each supplier. Information you should find out from the supplier may includes:

- ✓ Model and manufacturer names of peripherals that will satisfy the majority of your clients requirements (including system specifications, physical dimensions, support)
- ✓ Price of each model
- ✓ Availability of each model.

You may find it helpful to keep a record of any details that you collect so you refer to this information quickly and easily.

1.4. Placing an order

Page 4 22	Author: Federal TVET Agency(FTA)	IT Support Service Level 1	Date: Oct 2019
			Version: 1



Depending on the type of organisation you work for, placing an order for a hardware peripheral device could be done in a variety of ways. In a small organisation you may be responsible for ordering the device yourself. However, in a larger organisation there may be employees who are responsible for purchasing new equipment. You may need to fill out an order form that can be given to the purchasing department.

Before an order is submitted, it could also be necessary to obtain final approval from senior staff. Often an order form might require signatures from the manager or supervisor before it can be processed. A purchasing department might require written quotes from three suppliers, a recommendation and justification for the chosen supplier. Make sure that you find out from your supervisor or manager what procedures you need to follow when placing an order within your organisation.

Sample of order form but it depends on the organization

From: _____

Date: _____

Code/Model	Quantity	Description	Price	Supplier Name

Delivery point: _____

Budget holder's signature: _____

Please return to the purchasing department



Self-Check 1	Written Test
---------------------	---------------------

Name: _____ Date: _____

Instruction: Answer all the questions listed below, if you have some clarifications- feel free to ask your teacher.

1. Give the five (5) ways of locating a supplier. (5 points)
2. What are the four (4) factors in choosing a right supplier? (4 points)
3. After choosing the suitable supplier, what three (3) information you should find out from the supplier? (3 points)

Note: Satisfactory rating – 10 points above / Unsatisfactory - below 10 points. You can ask you teacher for the copy of the correct answers.

**2.1. Hardware inventories**

The purpose of a hardware inventory (or registry) is to keep detailed information about all the hardware equipment within an organization. Every piece of hardware, including each computer and peripheral device, should be recorded on the inventory. As well as providing an excellent quick reference guide to the organization's hardware, an inventory can be very useful for insurance, warranty and service purposes.

In order for an inventory to be a valuable source of information, it is vital that the information be maintained regularly. New devices need to be entered into the inventory as soon as they have been obtained. You must also adjust the inventory frequently, to delete hardware that is no longer functional or has been removed. Some organizations do random checks or yearly audits of their hardware inventories to ensure that all information is current.

There are a number of tools available to create hardware inventories. Databases and spreadsheets are often used to store the information. There are also software programs that you can purchase, designed specifically for recording hardware and software details. Although these programs are good for keeping a 'soft copy' of the information, it is also essential that you keep a current 'hard copy' (printed version) of the inventory. In this way, if the computer system ever fails you will still have the information.

Details that should be included within a hardware inventory includes:-

- Description of hardware device
- Manufacturer
- Supplier
- Model number
- Serial number
- Warranty or maintenance conditions
- Components
- Location
- Number and identity of authorised users
- Purchase price



- Date of purchase.

2.2. Documenting peripherals used with each computer

If the peripheral is an essential part of the computer system (for example mouse, keyboard or monitor) it is logical to record information about the device within the documentation for the computer to which it is connected. Individual computer inventories will often contain detailed information about the computer's related hardware and software. It may also be more practical to record information about the peripheral inside the computer's record, if the device is also permanently connected to a computer (for example a printer or scanner).

Table2.1. Details of computer specification for Inventories

Manufacturer:	Dell
Model:	OptiPlex GX280MT Minitower—Power
Operating System:	Windows XP
Serial number:	12345
RAM:	128 Mb
Hard disk space:	160 Gb
Monitor:	Dell Ultra-Sharp™ 1905FP flat panel,
Printer:	HP LaserJet IID
Keyboard:	Dell USB keyboard
Pointing device:	Dell USB 2-button optical mouse with scroll

2.3. Individually documenting each peripheral device

If the device is shared between several computers, it makes more sense to keep information about the peripheral as an individual entry in an inventory. Devices such as digital cameras, data projectors and USB drives would more likely to be used by many computers, thus it would make more sense to record their details separate to the computer details for recording hardware inventory information.



Hardware Inventory Sample	
Serial Number	1001
Hardware Device Description	Laser Printer
Manufacturer	Hewlett Packard
Model	Laserjet 1010
Supplier	Harris Technology
Date of Purchase	5/12/2004
Purchase Price	\$375.00
Warranty Expiry Date	5/12/2005

2.4. Checking Contents

When unpacking any peripheral device, an organized and methodical approach needs to be taken. Randomly ripping open boxes and packaging without carefully identifying each component can potentially cause many problems later on. Prepare a suitable work area before you begin unpacking. This should include a large sturdy flat area with no carpet so that small components will not be lost.

Before commencing to open any packaging, find the manual for the device. Check instructions for any precautions or specific unpacking procedures. Most manuals will also contain a section that tells you a list of included components. It is useful to create a checklist based on the component list. You will then be able to use the checklist to mark off the components when they have been identified. A sample checklist for a typical inkjet printer is as follows:-

- Printer
- Cartridge
- Power cable
- USB cable
- Sample paper
- CD driver



2.5. Be attentive when unpacking a peripheral device

Handle the packaging and contents with care, as you do not want to damage your new device. Remove any packing material surrounding and also within the device. Some printers, for example, have soft foam and plastic pieces inside the device to ensure that parts are locked into the correct position. Make sure that you remove these pieces and foam before installation.

Inspect the equipment for damage that may have occurred during transport. If the equipment has been damaged, report the damage to the supplier immediately. If possible, try to keep all the original packing material that came with your computer and its peripherals. Often this packaging gets thrown out because it is so bulky. It can be very useful; however, if you need to return the item within the warranty period as some manufacturers will request original packaging. It can also be good protection when transporting sensitive peripheral devices. For example, equipment such as digital cameras, video cameras and data projectors have delicate lenses which can break very easily.



Self-Check 2	Written Test
---------------------	---------------------

Name: - _____ Date: _____

Instruction: Answer all the questions listed below, if you have some clarifications- feel free to ask your teacher.

1. Explain the appropriate storage place when storing peripheral devices?
2. Explain the effect of unappropriated work place when storing peripheral devices?

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points

You can ask your teacher for the copy of the correct answers.

Page 11 22	Author: Federal TVET Agency(FTA)	IT Support Service Level 1	Date: Oct 2019
			Version: 1



Information Sheet – 3	Delivering components and validating the contents that match the packing list
------------------------------	--

3.1. Preparing peripheral devices that compatible with the system

There are a large variety of peripheral devices that can be connected to a computer system unit as an input, output, storage or communication purposes with different technological standards. Before acquiring any hardware peripheral device it is fundamental that you have a clear understanding of what the client requires and devices compatibility with the system as well as with the current technological era. This requires a considerable amount of planning and analysis of needs of clients by considering and validating the peripheral devices that used by the clients based on the organization standards and guidelines. Examining system specifications, checking availability of the position to plug peripheral devices (ports), physical space, and confirming budgets and time frames are just some considerations that need to be taken into account. Therefore, methods such as interviewing, questionnaires and observation can all assist gathering this information for validating the contents that much the packing list of peripheral devices.

Once client requirements have been clarified, suggested solutions need to be documented to the client in accordance with organisational standards and guideline. A solution can comprise a suggested list of products. Once the product has been chosen this needs to be verified by the client. Before proceeding with the purchase, it is also important that the warranty and support agreements of the supplier will be satisfactory for the client's needs and performing the best task within any organization.



Self-Check 3	Written Test
---------------------	---------------------

Name: - _____ Date: _____

Instruction: Answer all the questions listed below, if you have some clarifications- feel free to ask your teacher.

1. What do you need to have to have detailed information about all the hardware equipment within an organization with regarded to the listed/asked peripheral devices? (10 point).
2. Explain the way of validating peripherals that compatible with any computer system that to be used at work place? (5%)

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points

You can ask your teacher for the copy of the correct answers.

Page 13 22	Author: Federal TVET Agency(FTA)	IT Support Service Level 1	Date: Oct 2019
			Version: 1



4.1. Storing Peripheral Devices

Peripheral devices need to be located in a suitable environment; otherwise there may be potential problems. It is a good idea to refer to the manufacturer's manual to determine what guidelines should be followed. When storing peripherals it is important to:-

1. Make sure equipment is kept in ideal working conditions
2. Adhere to current occupational health and safety guidelines
3. Ensure the electrical safety of the device
4. Consider security of the device

- **Keeping equipment in ideal working conditions**

Each manufacturer will have their own recommendations on how to store their peripheral equipment. In order to guarantee that a peripheral will function correctly throughout its life it is important to follow guidelines that have been recommended by the manufacturer. Some common recommendations may include:-

- **Keep equipment in the correct position:** - After unpacking, most devices will usually have a proper resting position. If a device is not kept in its natural position, there could be problems when trying to operate the device later on. For example, when a printer is stored in a vertical position, components such as the ink cartridges could leak or be dislodged.
- **Keep equipment away from weather, dust and other harmful material-** When finding a storage location, consider what kind of elements the device may be subjected to. If, for example, you store a USB drive in a cabinet next to chalk, dust from the chalk could potentially damage the storage device's USB connection.
- **Do not expose equipment to extreme temperatures and high humidity:-** Sudden changes in temperature can cause condensation in many peripheral devices. For instance, if a video camera is taken from a cold place to a warm place, condensation may form on the lens and internal parts.
- **Avoid storing the device in direct sunlight:-** Exposure to direct sunlight could damage many of the external components of a device as well as subject the device to high temperatures.



- **Do not expose equipment to water or moisture:** - If water gets inside many peripheral devices there is a risk of electric shock.
- **Adhering to OH & S guidelines**
When positioning peripherals in their permanent locations it is important to take into account many OH&S considerations as follows
- **Positioning of the monitor**
It is essential to position a monitor correctly to ensure it will suit the needs of the user. Tips include:-
 - ✓ Try to make sure that monitor is in a position away from the glare of sunlight.
 - ✓ Check that the brightness and contrast controls of the screen have been adjusted to suit lighting conditions in the room.
 - ✓ The top of the screen should be the same level as the user's eye level.
- **Positioning of the keyboard**
A keyboard also needs to be positioned carefully to be of adequate comfort and safety for the user. Some tips include:
 - ✓ Position the keyboard directly in front of the monitor and at the same height as the mouse.
 - ✓ The keyboard should allow the user's forearms to be parallel to the floor.
 - ✓ Allow space for the computer user to rest their wrists.
- **Positioning of other equipment**
Some general Occupational Health and Safety guidelines to consider when positioning other peripheral equipment/devices are:
 - ✓ Make sure that you can reach the peripheral device and its components without having to strain your back.
 - ✓ Place equipment such as scanners and printers at a suitable height so a user is easily able to reach paper trays, open scanner lids, etc.
 - ✓ Make sure that equipment such as speakers is easily accessible if settings such as volume control need to be changed.
- **Ensuring electrical safety**
Some tips to ensure electrical safety are:-
 - ✓ Do not be tempted to add too many extension cables or double socket adapters to your existing electrical sockets.



- ✓ Never use damaged plugs or leads.
- ✓ If possible, ask an electrician to check the safety of your system.
- ✓ Position electrical leads where they will not cause tripping hazards to people.

- **Physical security of devices**

In many situations it is important to consider the physical security of the peripheral devices. Some devices, such as digital cameras, data projectors and USB drives, may not be permanently connected to a computer so it will be necessary to find a secure location to store the device. Make sure that these kinds of devices are secured in a lockable storage cupboard, cabinet or safe when not required. Some organisations install security devices onto desks to guarantee that computers are secure and will not be able to be taken from their position unless unlocked.

- **Storing consumables**

The term 'consumables' refers to a product that is used once and then replaced. Examples of consumables include printer cartridges, CDs, paper and simple computer accessories. As well as for computer equipment, consideration also needs to be given to the way consumables for peripheral devices are stored.

- **Ink cartridges and toner**

Make sure to store cartridges/toner in a cool dry place, away from sparks and open flames, with adequate ventilation and do not expose the device to high temperatures. Also ensure that the cartridges are not taken out of their packaging until they will be used within the printer, as the ink will dry out before use.

- **CD/DVDs**

When possible, make sure that CDs are kept in their protective case, to minimise the chances of being scratched. Also keep them out of direct sunlight and extreme temperatures.

- **Summary**

There are several steps that you must go through when you obtain a peripheral device. The first step involves working out where to obtain the device, whether it is from a supplier who regularly provides equipment to the organization, or a supplier found from searching the Internet, magazines or telephone directory.



Depending on the organization, placing an order for a device may be done in different ways. Some smaller organizations may not have strict guidelines, while larger organizations may have strict procedures that need to be followed.

Once the device has arrived it is always a good idea to keep a record of the device in a hardware inventory. Recording details such as manufacturer, supplier, model, date of purchase and purchase price, can be very useful — especially if you need to send a device back within the warranty period.

It is also a good idea to unpack the contents in an organized manner. Find a clear space to unpack contents and create a checklist of equipment that should be supplied.

Once the device has been unpacked, storage is another consideration. Make sure to look at the manufacturer's guidelines, consider the security of the device and any occupational health and safety issues.



Self-Check 4	Written Test
---------------------	---------------------

Name: - _____ Date: _____

Instruction: Answer all the questions listed below, if you have some clarifications- feel free to ask your teacher.

1. What do you need to have to have detailed information about all the hardware equipment within an organization? **(1 point)**
2. What are the two (2) common tools to create a hardware inventories? **(2 points)**
3. Give at least six (6) details that should be included in hardware inventory. **(6 points)**
4. What are the four (4) important considerations when storing the hardware? **(4 points)**
5. What are the five (5) steps in obtaining a peripheral device? **(5 points)**

Note: Satisfactory rating – 17 points above / Unsatisfactory - below 17 points. You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

Short Answer Questions



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.

Scenario: You have already selected a supplier of computer peripherals. You are going to place an order of the peripherals per piece. It will be assembled later by the company technician. You can decide on the specs of it.

Fill up an order form below

From: _____

Date: - _____

Code/Model/Serial number	Quantity	Description	Price	Supplier Name

Delivery point: - _____

Budget holder's signature: - _____

Make an inventory of all the delivered items. (Just choose one item for the purpose of this activity)



Details for an Office Computer

Manufacturer:	
Model:	
Operating System:	
Serial number:	
RAM:	
Hard disk space:	
Monitor:	
Printer:	
Keyboard:	
Pointing device:	

Note: - 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.



List of Reference Materials

- **Winn L Rosch.** The Winn L. Rosch Hardware Bible (6th Edition).
- **Christopher A. Crayton Joel Z. Rosenthal Kevin J. Irwin.** The A+ Certification & PC Repair Handbook (Networking Series).
- **Richard Palmer.** Maintenance Planning and Scheduling Handbook, 2nd Edition (McGraw-Hill Handbooks).
- The A+ e-books and IT Essential Presentation and different URLs resources.



Experts

The development of this Learning Guide for the TVET Program Information technology support service Level I.

No	Name of Trainers	Phone Number	E-mail Address	Region
1	Abdulakim Ahemed	0921900418		Harari
2	Assefa Million	0911034866	amen192005@gmail.com	Harari
3	Derese Teshome	0913938439	dereseteshome@gmail.com	AA
4	Getenesh Osamo	0923816933	gete.osamo@gmail.com	SNNPR
5	Remedan Mohammed	0913478937	remedanm77@gmail.com	Harari
6	Sewayehu W/Yohanes	0911716733	Baroke0816@gmail.com	SNNPR
7	Damelash Yihalem	0911912015	demenati@gmail.com	Harari