# HARDWARE AND NETWORKING SERVICE

# Level-I

## Based on March 2022, Curriculum Version 1



## Module Title: - Maintaining Equipment and Software Inventory and Documentation

## Module Code: - EIS HNS1 M07 0322

## Nominal Duration: - 20 Hour

**Prepared by: Ministry of Labour and Skill**

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**Addis Ababa, Ethiopia**

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Ministry of Labor and Skills

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## Acknowledgment

**Ministry of Labor and Skills** wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this Teaching, Training and Learning Materials (TTLM).

## Acronyms

OHS – Occupational health and safety

ESD – Electro Static Discharge

PC- Personal Computer

JIT- Just in time

MRO- Maintenance reporting Operating

PC- personal Computer

OS- Operating System

## Introduction to the Module

This module is designed to meet the industry requirement under maintaining equipment, software inventories and documentation occupational standard, particularly for the unit of competency

**This module covers the units**:

- Document and update inventory
- Store technical documentation

**Learning Objective of the Module**

- Perform  inventory document and update inventory
- Apply store technical documentation

**Module Instruction**

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. See the operation sheet at the end of each unit
4. Do the operation sheet at the end of each unit
5. Read the identified reference book for Examples and exercise

## Unit one: Document and update inventory

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

- Inventory concept and principles
- Inventory techniques and procedures
- Hardware inventory
- Licenses and software inventory
- User documentation or technical manuals

This Module will also assist you to attain the learning outcomes stated in the Aboev. Specifically, upon completion of this Module, you will be able to:

- Understand inventory concepts and principles
- Apply inventory techniques and procedures
- Maintain Hardware inventory
- Uphold licenses and software inventory
- Record and organize user documentation or technical manuals

## 1.1 Inventory concept and principles

Inventory is comprehensive detail information about the hardware and software of the computer system.

- The Hardware inventory details include information like, memory, operating system, manufacturer, device types, peripherals, etc.
- The Software inventory provides details of the software by software vendors. It also provides the license compliance details of the software and software metering.

### Features of Inventory

- Complete Hardware and Software Inventory.
- Scan the systems periodically to collect the hardware and software details.
- Manage Software Licenses.
- Detect Prohibited Software in the network.
- Software usage statistics.
- Comprehensive reports on hardware, software inventory and license agreement.

### Types of inventory

There are lots of different types of inventory, and which ones you'll deal with depends on the goods you sell. Here's an overview of some of the types you're more likely to encounter:

- Finished goods/for-sale goods: The products you sell to your customers
- Raw materials: The inventory you use to make your finished goods
- Work-in-progress: Essentially, unfinished goods — inventory that is part-way through the manufacturing process
- MRO goods: MRO stands for maintenance, repair and operating. This is the inventory you use to support the manufacturing process
- Safety stock: The additional inventory you keep in store to deal with supplier shortages or surges in demand

Every venture that handles inventory will need some way of handling stock. Let's take a look at how that works in principle.

### Key principles of inventory

The three key principles of inventory management are

- **Demand Forecasting**

Depending on the industry, inventory ranks in the top five business costs. Accurate demand forecasting has the highest potential savings for any of the principles of inventory management. Both over supply and under supply of inventory can have critical business costs. Whether it is end-item stocking or raw component sourcing, the more accurate the forecast can be.

Establishing appropriate max-min management at the unique inventory line level, based on lead times and safety stock level help ensure that you have what you needs when you need it. This also avoids costly overstocks. Idle inventory increases incremental costs due to handling and lost storage space for fast-movers.

- **Warehouse Flow**

The old concept of warehouses being dirty and unorganized is out dated and costly. Lean manufacturing concepts, including 5S have found a place in warehousing. Sorting, setting order, systemic cleaning, standardizing, and sustaining the discipline ensure that no dollars are lost to poor processes.

The principles of inventory management are not any different from other industrial processes. Disorganization costs money. Each process, from housekeeping to inventory transactions needs a formal, standardized process to ensure consistently outstanding results.

- **Inventory Turns/Stock Rotation**

In certain industries, such as pharmaceuticals, foodstuffs and even in chemical warehousing, managing inventory down to lot numbers can be critical to minimizing business costs. Inventory turns is one of the key metrics used in evaluating how effective your execution is of the principles of inventory management.

Defining the success level for stock rotation is critical to analyzing your demand forecasting and warehouse flow.

- **Cycle Counting**

One of the key methods of maintaining accurate inventory is cycle counting. This helps measures the success of your existing processes and maintain accountability of potential error sources. There are financial implications to cycle counting. Some industries require periodic 100% counts. These are done through perpetual inventory count maintenance or though full-building counts.

- **Process Auditing**

Proactive error source identification starts with process audits. One of the cornerstone principles of inventory management is to audit early and often. Process audits should occur at each transactional step, from receiving to shipping and all inventory transactions in between.

By careful attention to each of these critical core principles, your business can increase efficiency and reduce costs.

### 1.2 Inventory techniques and procedures

#### 1.2.1 Inventory techniques

No matter the size of your business, employing some of these common inventory management techniques can be a great way to take control of your stock. Here are a few to consider:

- **Just-in-time (JIT) inventory.** JIT involves holding as little stock as possible, negating the costs and risks involved with keeping a large amount of stock on hand
- **ABC inventory analysis.** This technique aims to identify the inventory that is earning you profit, by classifying goods into different tiers
- **Drop shipping:** Businesses that use drop shipping essentially outsource all aspects of managing stock with several benefits but a few key drawbacks
- **Bulk shipments:** This technique is based on the assumption that buying in bulk is cheaper. The method is great if a business is sure that their products will sell but can pose challenges when demand suddenly changes

  Backordering. A backorder is when a customer places an order for stock that is not yet available. Learn more about how backordering impacts inventory control
- **Consignment:** This technique allows a consignor, usually a wholesaler, to give their goods to a consignee, usually a retailer, without the consignee paying for the goods up front. The consignor still owns the goods, and the consignee pays for the goods only when they actually sell. This sounds great but it also carries major risks
- **Cross-docking:** This system virtually eliminates the need to hold inventory. Products are delivered to a warehouse where they are sorted and prepared for shipment immediately. They are usually reloaded into other trucks at the same warehouse and sent out for delivery immediately
- **Cycle counting:** This technique involves counting a small amount of inventory on a specific day without doing an entire stock take. This method helps your business regularly validate accurate inventory levels in your inventory management software

**Skills for handling IT equipment**

It is a legal requirement to follow OH&S guidelines in workplaces. States and territories each have their own workers' compensation laws. In NSW Work Cover administers workers compensation claims and the NSW Occupational Health and Safety Act 2000.

By law, organizations must have an OH&S committee or an OH&S representative in the workplace. Most large organizations employ a staff member who is fully responsible for OH&S and also convenes a committee. Smaller organizations may have a member of staff who is trained in OH&S and is responsible for it as part of their job. Employers must make OH&S guidelines and procedures available in the workplace. Generally, all employees contribute to the maintenance of OH&S by following those procedures and reporting situations where accidents and injuries occur.

Occupational health and safety guidelines must always be practiced when handling computers, peripherals and components.



Stock of computers (source: Google image)

- **Fragile components**

Fragile components such as memory and expansion cards need to be held on the outer edges. These components are made up of chips, transistors and wires that hold memory and transport information. You should not grasp them in the middle of the component. Your body can hold a large amount of static electricity and this can damage the circuitry, making the component unworkable.

- **Heavy equipment**

Heavy equipment, such as system units and monitors, should be placed correctly onto a trolley with wheels, so they can be moved with ease. If you need to bend down to pick up a heavy object, you should never bend over at the waist or shoulders. You should always keep a straight back and bend at the knees so that objects are lifted with the legs and not the spine, and serious back problems are avoided. Heavy objects must also be carried in the correct position to avoid dropping them.

### 1.2.2 Inventory procedures

Every business will apply its own way of inventory control. However, at the end of the day, managing stock efficiently is the target that everybody wants to achieve. There are a few common procedures and inventory management best practices that can instruct you on how to manage inventories more efficiently.

- **Prioritize location and accessibility**

Make sure that your warehouse and stock are well organized and accessible since it will reduce much time for staff to look for the location and find the products. As a result, all other following steps can run smoothly.

- **Establish the floor and layout arrangement**

This will help the owners and staff have all the product locations on their minds so it will be much easier and faster to find any items when needed. Besides, creating a floor plan will assist you in determining the best location for your merchandise.

- **Optimize and forecast your inventory**

Try to optimize and forecast your inventory by ensuring an adequate amount of goods, not too few or too many. It's also a good idea to make a list of hot items that sell faster than others. Regardless of the season, these things should always be in the warehouse. It will also be much easier to prepare for impending supply and demand concerns if sales rates are monitored and market trends are followed.

- **Get rid of unneeded stock**

Try to get rid of items that have been in stock for an extended period of time by running promotions or offering discounts. It will create more space for you to put other needed items. Besides, such offers can also increase customer satisfaction, make inventory replenishment easier, and keep business going forward.

- **Set a cycle count schedule**

Establish a cycle count timetable to adequately monitor product flow rather than waiting for a chance to count your inventory.

- **Check stock quickly after delivery**

After each inventory order arrives, spend a few minutes checking to see if your delivered merchandise is correct or there are any problems with the product's quality and refuse any items that are not ordered or spoil. This step will help you avoid the case that the real stock is not enough or excess the inventory data from the system.

- **Label all products**

Labels should have enough data such as product name, number, quantity, and description. Labeling all products makes it much easier and faster to recognize them.

- **Keep an eye on expiration dates**

When you pay attention to the product's expiration dates, you can get rid of any remaining merchandise before it goes out of date by reducing prices or offering special deals.

- **Make sure you're keeping track of your inventory**

You will need to know how much stock you have, where the stock is coming from, or when the items are leaving the warehouse to run your business. So, it is essential to keep track of your inventory frequently. Nowadays, almost all businesses use inventory management software to help them keep track of inventory.

- **Assign inventory management responsibility**

When you assign separate inventory management responsibilities for an individual, they are more likely to do the task better. It is because they focus more on the process, spend more time, and are more familiar.

- **Create back-ups of your inventory data**

You must also ensure that you have data backups so that critical information is always available, accessible, and never lost. And, in the unlikely event that data is lost or erased, you'll have backups ready to restore, ensuring that your business and customers aren't harmed.

### 1.3 Hardware inventory

**Viewing Computer Details**

The Computers view is the details of the computers and their operating systems. The table below provides the following details of the computers:

- **Computer Name**: The DNS name of the computer
- **Operating system**: The operating system of the computer
- **Service Pack**: The service pack version of the operating system
- **Version**: The operating system version.
- **Virtual Memory**: Total virtual memory in kilobytes.
- **Free Virtual Memory**: Total virtual memory in kilobytes that is currently unused and available.
- **Visible Virtual Memory**: Total physical memory that is available to the operating system.
- **Free Visible Memory**: Total physical memory that is currently unused and available.

**Viewing Hardware Details**

The Hardware view provides the details of the hardware detected in the scanned systems. It provides the following details:

- **Hardware Name**: Name of the hardware device.
- **Hardware Type**: Type of the hardware like processor, keyboard, port, etc.
- **Manufacturer**: Name of the manufacturer of that hardware device.

**Hardware Inventory Reports**

- Computers by OS
  Is the details of the computers by their operating system.
- Computers by Manufacturer
  Is the details of the computers by their manufacturer.
- **Computers by Memory**
  Is the details of the computers by their RAM size.
- **Computers by Age**
  Is the details of the computers by their year of manufacturing.
- **Computers by Device Type**
  Is the details of the computers based on their type like, Laptop, Portable, Desktop etc.
- **Computer by Disk Usage**
  Is the details of the computers along with their total and free hard disk space.

**Inventory of the hardware specifications**

Inventory would be necessary to take account of all the It resources of one company. Having an inventory doesn't just count one working PC as a whole but the need to take account all the peripherals in it. Aside for the peripherals that are not currently in use, spare, so to speak. There were several ways of obtaining the specification every parts of the PC;

you can check it one by one by looking at its part. For the working PC, you would need to unplug it then remove one by one its parts to see the specifications written on every part of it. Of course you would need to apply safety procedures in disassembling hardware peripherals. For a big company having a lot of working PC, it is not advisable.

Another way to obtain its specifications is through the use of a computer hardware specification monitoring software. You would need to have the said software installed in every computer then you can quickly check all specifications of your hardware. That would be faster than the first but would require you the software and installation of it to all the PC. One best way to do it is to check the Device Manager in the Control Panel of the working PC. It would give you the list of all peripherals attached to the computer with its specifications as stated in the beginning of this topic hardware inventory include detail information like, memory, operating system, manufacturer, device types, peripherals, etc.

## 1.4 Licenses and software inventory

### 1.4.1 Viewing Software Details

The Software Inventory provides the details of the software detected in the systems.
You can filter the view by Software Type, Access Type, or License. It provides the following details:

- **Software Name**: Name of the software.
- **Version:** The version of the software.
- **Software Type**: Can be either commercial or non-commercial. Use the **Move To** option to specify the software type.
- **Vendor:** The software vendor.
- **Licensed To**: Refers to the person or the company to whom the software is licensed.
- **License Expiry Date**: Date of license expiry.
- **Remarks**: Remarks, if any.

**Software Inventory Reports**

- Software by Manufacturer
  Are the details of the software installed in the scanned systems based on their vendors along with the total number of copies installed.
- Recently Installed Software
  Is the list of software installed recently.
- Prohibited Software
  Is the list of prohibited software detected in the network.
- Software Usage by Computer
  Is the list of software and their usage statistics in individual computers.
- Software Product Keys
  Is the list of Product Keys that were used for installing the software.

### 1.4.2 Software Licenses to be renewed

Is the list of software whose licenses have to be renewed? Shortly, based on the Software the usage statistics, you can decide whether to renew the licenses or not.

**Inventory Alerts**

Inventory alert notify the following:

- When a new hardware is detected in the network

- When a new software is detected in the network
- Non Compliance of software licensing policy, i.e., the license is inadequate and have to purchase more licenses to be compliant
- When prohibited software is detected in the network.

Inventory alert can be any of the following:

- Hardware Added
- Hardware Removed
- Allowed Software Installed
- Allowed Software Uninstalled
- Prohibited Software Installed
- Prohibited Software uninstalled
- Software Under-Licensed
- License Expired
- Prohibited Software Identified
- New Computer Identified

**1.5 User documentation or technical manuals**

User documentation (also called end user manuals, end user guides, instruction manuals, etc.) is the content you provide end users with to help them be more successful with your product or service.

A document is information and the supporting medium that carries the information can be paper (hard copy), a magnetic, electronic, or optical computer disc, a photograph or master sample, or a combination thereof. A set of documents, such as specifications, records, manuals or plans is frequently called ‘documentation’. An IT organization or department will accumulate many technical papers, records and books. Some documents and manuals may be easy to find, while others can be misplaced, lost or damaged. To avoid the latter, methods similar to the inventory of hardware and software can be applied to documentation.

In an IT support role, you may be called upon to provide a friendly information resource for clients. You should be able to easily find and use the information they need.

You may otherwise need to advise clients on:

- what information is available and where it might be
- how it can be found and retrieved (different media and formats)

- how the information can be searched, stored or printed
- How it can be sent to them.

Think about the types of IT documentation and when it may be needed or requested. You will need to answer requests quickly and effectively.

A customer may ask for:

- a software manual, so to install a program
- a manual to check compatibility with other hardware or software
- Instructions to perform a specific task.

A colleague may ask for work instructions such as how to:

- reset a mainframe password
- check a local are network (LAN) printer queue
- Set a computer for remote access.

A manager or auditor may ask for computer inventory records or software licensing records.

### 1.5.1 Types and attributes of documentation

If your organization or department has a reference collection (and it should have) it could include books, CDs, DVDs, technical manuals and online resources that staff and clients use to find particular information.

Reference items that may be kept on open shelving (but must still be accounted for), include:

- procedural and technical manuals
- technical reference books and textbooks
- catalogues
- directories
- manufacturer’s specifications
- technical magazines, journals
- case histories
- Training guides.

Software manuals on paper or CD ROM for a particular software program may be kept at the workstation running the application.

**Self-Check 1**

I: Match column A with column B, if you have some clarifications feel free to ask your teacher.

| Column A | Column B |
|---|---|
| _____ 1. Inventory | A. End user guides |
| _____ 2. Principle of inventory management | B. Demand forecasting |
| _____ 3. Software Licenses | C. Detail information |
| _____ 4. User documentation | D. Software authorization permission |
| | E. Hardware Inventory |
| | F. Software Inventory |

II: Explain and define the following terms

1. What is Inventory
2. What are the procedures of Inventory
3. What are the Inventory techniques

III: Say true or False

1. Inventory is just a storage hall for materials
2. Expired licenses doesn't have an effect on the Software application

**Operation Sheet**

**Operation title:** Information of a computer

**Purpose:** Getting information about a computer

**Instruction:** Using the steps below get an information about computer components, peripherals and devices

- **Steps to access windows device manager**
  - Go to control panel
  - Hardware and sound
  - Devices and Printers
  - Device Manager
- **Steps to access window information system**
  - Start
  - Windows administrative tools
  - System information
- **Steps to see the software and service license terms of Microsoft**
  - Right click on This PC
  - Go to property
  - At the bottom see Microsoft software license terms and Microsoft service terms

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**Lap Test**

Name: _____ Date: _____
Time started: _____ Time finished: _____

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

Make an inventory of all the peripherals in your computer

| Computer Peripherals | Quantity | Specification |
|---|---|---|
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Make an inventory of all the software installed in your computer

| Software | Kinds of Software | Version/Details |
|---|---|---|
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## Unit two: Store technical documentation

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

- Store equipment, software and documents securely
- Access technical documents
- Disseminate technical documentation and manuals

This Module will also assist you to attain the learning outcomes stated in the Above. Specifically, upon completion of this Module, you will be able to:

- Apply securely store equipment, software and documents
- Apply technical documents access
- Apply Disseminate technical documentation and manuals

## 2.1 Store equipment, software and documents securely

Stock describes the goods that an organization currently holds. For example, if an organization makes computers, they need to keep a stock of hard disks, system boards, network cards, monitors, cabling and so on.



Stock of computers (source: Google image)

Inventory is a list of what you actually have, and a description of it. For example, when you insure the contents of your house you are usually asked to perform an inventoryof the contents, in order to calculate how much to insure it for. Organizations need to keep track of how much stock they have — so that they don't run out of stock, as well as for insurance reasons. In addition, once a year all items may be counted manually to make sure that the computerised stock-control records correspond with what is actually on the shelves, a process known as stock taking.

- **Stock Control**

Stock control is an important part of running a business efficiently. If your stock runs out, customers may not receive their goods when they want them or when you had promised. If this happens, you may well lose customers. If they tell others about their experience, your organization might even gain a bad reputation. Procedures for inventory control to make sure you never run out of stock, you need a good way of managing it. In order to do this, you need an inventory-control system (sometimes called a stock-control system) that tells people how to obtain items from stores. These procedures are needed to make sure that theft of stock doesn't occur so that information about the stock taken from stores is entered correctly into the inventory system.

Computerized inventory-control systems

Computerized inventory-control systems, like any computer system, rely on the correct information being entered into them. They are only as useful as the data that is fed into them. Therefore, it is important that when stock is reordered or used, it is always entered into the system.

- **Stock levels**

Inventory-control systems are used to maintain an optimum level of stock. Some companies use a system called just-in-time. This means that they keep minimal stock and then they order more just before, or as, it is needed. This only works if you have reliable suppliers who deliver on time and at short notice. An alternative to a just-in-time system is to keep large quantities of everything. This isn't practical, because you don't want to tie up a lot of money on goods that are sitting on a shelf waiting to be used or sold. In the IT business, it is even more important not to keep excess stock, because a disk drive or PC or network card you buy today could become obsolete or superseded in a short time. What most organizations do is try and keep stock levels as low as possible, so that they have enough stock for the usual demand and a little extra to cover extraordinary needs.
One of the benefits of having a computerized system is that you can set different reorder levels for different stock items, and the system will automatically order new stock when the reorder levels are reached.

- **Accessing stock and inventory control**

Entry of data into an inventory system may be done by either a stores person, an operator or a clerk who receives the information in a stock request or requisition form (generated by people needing more stock), or via delivery notes (from stores when new stock arrives). In the case of large supermarkets, when a purchased item is scanned at the checkout, the inventory system reduces the number of items in stock automatically by one.
If you need to enter a stock movement into a computerized inventory, you will probably just need to enter the item number or name, the amount of stock used or returned, and where it was used or taken from. All the other details, such as your name and the date, will be filled in for you. If you have a paper-based system, you will have to fill out all these details. Usually, this will be in duplicate or triplicate, with one copy going to the stock-control section, one kept by you, and one possibly being left in the book. The procedures for doing this will vary from one organization to another.

**Factors that influence the level of inventory**

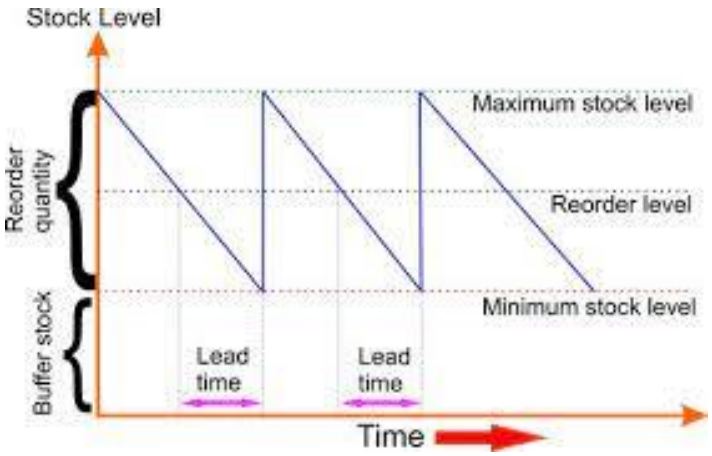
Factors that can influence the level of inventory, or the number of any item held in store, include:
Operational needs: The Company may be expanding or reducing in numbers of people, or the amount of business it does.

- **Shelf life**: Some items including software have a use-by or expiry date.
- **Delivery**: How long it takes to get an item from the supplier; the longer it takes to deliver, the more items that have to be kept in store to protect the organization from delays.

- **Installation**: How fast a product can be installed; if quickly, there needs to be an adequate supply to keep up with the number of installations.
- **Costs**: How much money is available to invest in stock not actually being used? How much money is available to rent storage space
- **Storage capacity**: How much room is available, Store room design, layout, location and security

The size and use of storerooms for IT will differ between organizations. Factors that can influence decisions about IT store rooms include:

- The size and complexity of the IT system or network
- Money and space available for building space and fittings
- Policies on delivery from suppliers and distribution to clients
- Location of the IT functions in relation to the rest of the organization
- Future plans for expansion.
- Design considerations




Level of stock (source: Google image)

In addition to the need of a clean, dry and well lit environment, safety must also be considered in the design of IT storerooms. Heavy equipment such as printers should be stacked in racks so that they cannot damage items underneath, and from which they can be lifted or moved without risk of injury. Lighting should be good. Ladders should be available, if required. Trolleys should be available to move heavy equipment.

**Locating stores**

The location of storeroom facilities will be influenced by factors, including the:

- **Expense**: the rental cost of office space or a warehouse filled with boxes and shelves can be a burdensome.
- **Volume**: the organisation may have a policy of buying large quantities of technology in order to be ready for any eventuality. However, the bigger the company, the more space is needed for that spare stock. A large company may have so much spare IT inventory that they need a warehouse or a distribution centre for it.
- **Access**: storage location is closely related to the supply of equipment to users and the need to get to parts and replacements quickly.
- **Size**: small- and medium-sized business may only need one storeroom from where they can easily dispatch replacements or parts to client workstations. Larger groups with branches may need storerooms to be located close to users.

**Security**

You should always store computer hardware and software in a secure place, in order to prevent theft. Access to a store room must be restricted to authorized personnel. Security also means protection against fire, flood, mould and insect pests. You must also make sure that there are real connections between the stored stock and the inventory records.

**Stock rotation**

Consumables are used in many different situations in organizations. How many examples can you think of Some examples include: paper for the printers and photocopiers, wipes and cleaning fluid to clean equipment new toner cartridges for laser printers. Even if you work for an organization with a small number of computers, workers may still use a reasonable quantity of consumables. You will need to ensure that the oldest stock is used first; a technique or principle called **stock rotation**.

Stock rotation ensures that you don’t use up most of your stock of a particular item only to find that you can’t use the last one because it is too old. Photocopier paper can be used as an easy-to-hand example of the need for stock rotation. Photocopier paper needs to be kept away from damp and humidity and to be stored flat. Because it is quite difficult to create this kind of perfect environment, photocopier paper may not remain in good condition and may cause paper jams as a result. To prevent this, you need to have a system for storing the stock so that you can easily tell which is the oldest. This could involve arranging the items in sequence on a shelf, or printing the acquisition date on the item or its container.

### 2.1.1 Storing computer equipment

In this modern era, it's safe to say that we're all heavily dependent on the use of computers, laptops and electronic equipment. With the rapid advancements, we are constantly upgrading our computers, phones and other electronic items. So, what do we do with our 'old' electronic equipment? Do we throw them away? Or do we keep them for their nostalgic value? And if they are office equipment, should we keep them for our future employees. If you're thinking about storing them, here are some smart storage tips for your electronic equipment.

- **Remove batteries and ink cartridges, and detach cables and peripherals**

Always remove the batteries before storing battery-operated electronics. If you leave the batteries in, they will discharge slowly over time, and once depleted may leak deposits of potassium carbonate, which can ruin the device. Remove ink cartridges from printers, or they may leak while not in use. Also, detach all cables and accessories from your devices before storing them. Otherwise metal-to-metal contact between the connections of the cable and device can cause the cables to seize in their sockets.

- **Protect against ESD**

Computer parts that include chips or electronic circuitry – such as motherboards, drives, graphics and sound cards, and memory cards – are vulnerable to damage from electrostatic discharge (ESD). To protect this type of component, place it in an anti-static bag. Ideally, use the grey or metallic anti-static bags, which offer better protection than the pink foam bags.





ESD protection tool (source: Google image)

- **Wrap fragile items**

For extra protection, add a layer of bubble wrap over the antistatic bag you use. Note that you should not use plastic covers for any of your devices. These trap moisture, which can damage sensitive components.

- **Choose the right container for storing electronics**

Once you've adding protective wrapping, store electronic components in clearly labelled, sealed plastic bins or cardboard boxes. If you still have the original packaging for a device or component, it's ideal to use that. Then you can place the item in a larger container, along with whatever other components and cables you need to store. Place a layer of packing peanuts or another protective material in the bottom of the box, place items upright inside the box and fill the remaining space with packing material.

- **Add a desiccant and seal the container**

It's a good idea to add a desiccant, like a silica gel sachet, to the box. This will absorb moisture, helping keep the interior dry. Finally, seal the box, making sure that there are no gaps for insects or dust to enter.

Aim to store electronics, including computer parts, where they'll be protected from humidity, temperature extremes and physical damage. If there's too much moisture in the air, components may oxidase or even cause short circuits. If the air is too dry, ESD is more likely. And of course, sensitive or fragile components might not survive if they're accidentally kicked, dropped or tripped over. Given the crime rate in South Africa, it's also wise to protect valuable electronic equipment from theft.

**XtraSpace: an ideal solution for storing electronics**

XtraSpace offers the ideal solution for storing electronics, computer parts and cabling. For a really affordable monthly fee, you can securely store your electronic equipment where it won't be damaged or stolen.

### 2.1.2 Storing computer software

Software inventory management is the process of keeping a record of all the software and applications used within an IT environment. It is a part of IT asset management that enables the recording of type, size, data, vendor and other related data of software installations.

Software inventory management processes usually include:

- Keeping a record of the quantity of software or applications installed, installation date, size, etc.
- Type of software installed or deployed within the IT infrastructure such as billing, payroll, CRM, etc.
- Expiry and license renewal dates
- Software update cycle (when was the software last updated and when is the next update due)

Software inventory management is also used as a means to calculate the software's monetary worth and impact on business.

**Self-check 2**

I Discuss, define or give short answer

1. Mention at least three factors that influence the level of inventory
2. What is an ESD protection
3. Stock rotation

II Fill the blank space where necessary

4. _____is the goods that an organization holds
5. _____is a tool that help us to protect from unnecessary charge transfer to our body

III Say true or false

6. It is advisable to store computer devices or electronics with their removable batteries
7. Production will have a direct relationship with an inventory products

**References**

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