Module – 3

Installation and Maintenance of Hardware and Its components

* What is user management?

User management refers to the process of managing user accounts and their permissions within a system, application, or network. It involves tasks like creating, updating, and deleting user accounts, assigning roles, and controlling access to resources based on user privileges.

* Where can we access the user management?

- Active Directory (AD)

- Network Operating System (NOS)

- Cloud services (e.g., AWS, Azure)

- Server management consoles (e.g., Windows Server)

- Network devices (e.g., routers, switches)

* Why is user management needed?

User management is needed for:

1. Security

2. Compliance

3. Productivity

4. Efficiency

5. Accountability

It prevents unauthorized access, data breaches, and cyber threats.

* Do a practical to create a user from user management

Done into lab

* Do a practical to change the password of the administrator from the user management

Done into lab

* What is file folder permission? sharing and NTFS

1. Sharing: Controls network access (Read, Write, Read/Write)

2. NTFS: Controls local access (Read, Write, Execute, Delete)

* What is the use of file and folder permission?

File and folder permissions are used to:

1. Control access

2. Secure data

3. Prevent unauthorized changes

4. Limit user access

Ensures data safety and security.

* Write down the steps to give a folder read only permission.

1. Right-click the folder

2. Select Properties

3. Click Security tab

4. Click Edit

5. Select user/group

6. Uncheck Write and Modify boxes

7. Click Apply, then OK

* Write a step to give a file only admin permission.

1. Right-click the file

2. Select Properties

3. Click Security tab

4. Click Edit

5. Remove all users/groups except Administrators

6. Ensure Administrators have Full Control

7. Click Apply, then OK

* Do a practical to change the ownership of the folder and the sub folders in it.

Done into lab

* What is OS?

An Operating System (OS) is software that manages computer hardware and software resources, providing a platform for running applications. It acts as an intermediary between computer hardware and user-level applications.

* What are the types of OS?

Types of Operating Systems (OS):

1. Single-User OS

2. Multi-User OS

3. Multi-Tasking OS

4. Real-Time OS (RTOS)

5. Mobile OS

6. Embedded OS

7. Server OS

8. Mainframe OS

* Do a practical to create bootable pen drive for kali Linux and install OS

Done into lab

* Do a practical to create a bootable pen drive for windows 10 and install OS Do pen drive for creating a pen drive for mac OS Big sur with unibeast.

Done into lab

* What is clean install?

Installing an Operating System (OS) from scratch, erasing all existing data, programs, and settings.

* What is upgrade installation?

Installing a new version of an Operating System (OS) over an existing one, preserving existing settings, files, and programs.

* Do a practical to upgrade from windows 8 to windows 10.

Done into lab

* What is partitioning?

Partitioning is the process of dividing a large database, disk, or storage system into smaller, more manageable sections, called partitions. This can improve performance, organization, and security by isolating data, allowing for easier management, backup, and retrieval. In databases, partitioning helps distribute data across different locations or systems to optimize query performance and scalability.

* What is partition?

A partition is a section of a hard drive that is treated as a separate disk drive. It is a logical division of the hard drive's storage space, allowing you to organize and manage data independently within each partition.

* What is format?

The process of erasing all data on a storage device (hard drive, SSD, etc.) and reinitializing it for use, removing all files, folders, and operating systems.

* Format a partition using cmd.

Done into lab

* List out the administrative tools.

1. Computer Management

2. Device Manager

3. Disk Management

4. Event Viewer

5. Local Security Policy

6. Performance Monitor

7. Services

8. System Configuration

9. Task Scheduler

10. Windows Defender Firewall with Advanced Security

* What is disk management tools?

A Windows tool to manage disk drives and partitions, allowing tasks like creating/deleting partitions, formatting, and assigning drive letters.

* List out the operations we can do with disk management tool

1. Create partition

2. Delete partition

3. Format partition

4. Assign drive letter

5. Change drive letter

6. Delete drive letter

7. Shrink partition

8. Extend partition

9. Initialize disk

10. Convert disk type (Basic to Dynamic)

11. Mark partition as active

12. View disk properties

* What is Device Management?

A Windows tool to manage and troubleshoot hardware devices, install/update drivers, and resolve device conflicts.

* Do a practical to delete a driver from the device management tool.

Done into lab

* What is windows features?

A tool to enable or disable built-in Windows features, such as Internet Information Services (IIS), Hyper-V, and Windows Media Player.

* Do a practical to install dotnet framework 3.5 with Windows feature.

Done into lab

* Do a practical to disable internet explorer in windows feature

Done into lab

* What is backup and restore?

Backup and restore is a Windows utility that allows users to:

1. Create backups of important files and data

2. Restore backed-up data in case of loss or corruption

3. Create system images for full system recovery

4. Schedule automatic backups

5. Choose what files and folders to backup

It helps protect important data from loss due to hardware failure, software issues, or user error.

* What are the tools of backup?

1. Backup and Restore (Windows)

2. Windows Backup

3. System Image Backup

4. File History

5. Backup and Restore (Windows Server)

6. Windows Server Backup

7. PowerShell Backup cmdlets

8. Third-party backup software (e.g., Acronis, EaseUS, Macrium)

* Do a practical to restore from restore point.

Done into lab

* How to protect system from malfunctioning due to electrical fluctuation? What is OS base firewall? And configure inbound and outbound rule

Protecting System from Malfunctioning due to Electrical Fluctuation

1. Use a UPS (Uninterruptible Power Supply) to regulate power supply.

2. Install a surge protector to absorb voltage spikes.

3. Use a voltage stabilizer to maintain a stable voltage.

**OS Base Firewall**

A firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Configuring Inbound and Outbound Rules

**Inbound Rule:**

1. Open Windows Defender Firewall with Advanced Security.

2. Click on "Inbound Rules" and then "New Rule".

3. Choose the type of rule (e.g., Port, Program, etc.).

4. Specify the protocol and port numbers.

5. Choose the action (Allow or Block).

6. Click "Finish" to save the rule.

**Outbound Rule:**

1. Open Windows Defender Firewall with Advanced Security.

2. Click on "Outbound Rules" and then "New Rule".

3. Choose the type of rule (e.g., Port, Program, etc.).

4. Specify the protocol and port numbers.

5. Choose the action (Allow or Block).

6. Click "Finish" to save the rule.

* Do a practical to block internet with firewall.

Done into lab