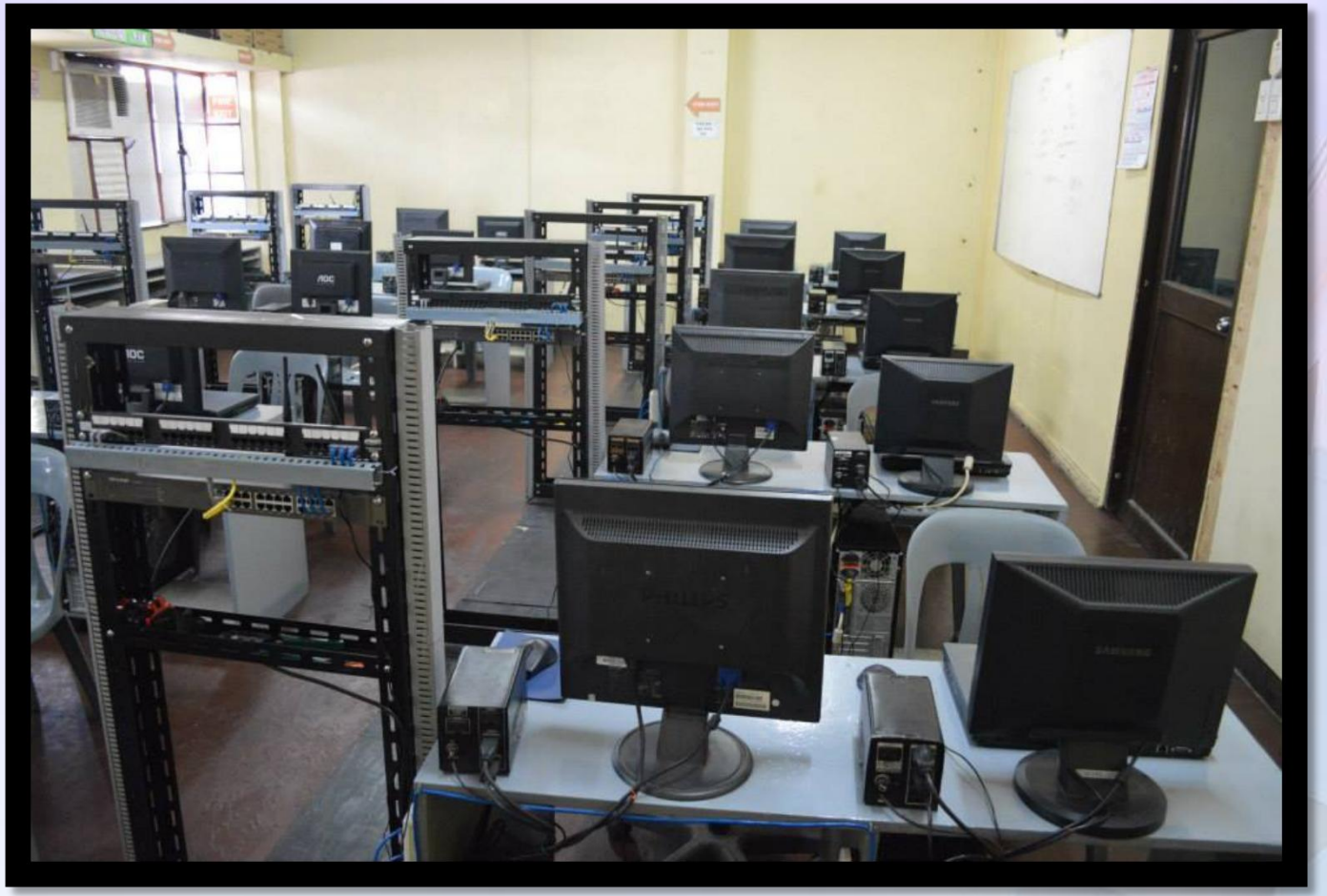

Computer Systems Servicing NC II

- *Maintaining Computer Systems and Networks*

LESSON 1: Planning and Preparing for Maintenance

Introduction

Troubleshooting is an approach to locate the cause of faults in a computer system. Not all troubleshooting experiences are the same since technicians acquire this skill based on their knowledge and personal experience.

That is why as a computer technician, you must be **knowledgeable** in the ***fundamentals of the computer concepts*** since your approach to solving a problem may rely heavily on your own knowledge.

TOPIC 1: Preventive Maintenance

Preventive maintenance is the regular and systematic inspection, cleaning, and replacement of worn parts, materials, and systems.

It is done to ***prevent*** failure of parts, materials, and systems by regularly checking whether all parts are in good working order.

TOPIC 1: Preventive Maintenance

Purpose of Preventive Maintenance

•Preventive maintenance reduces the probability of hardware or software problems by systematically and periodically checking hardware and software to ensure proper operation.

•Regular preventive maintenance ensures minimal system failure. When there are fewer failures, less troubleshooting will be done, thus, saving an organization time and money.

•Preventive maintenance can also be done by upgrading certain hardware or software such as a hard drive that is making a noise, upgrading insufficient memory, and installing new software updates for security and reliability.

TOPIC 2: Conducting Maintenance

First and foremost, maintenance is important in **reducing hardware and software issues**. With this, computer downtime and repair costs are reduced.
Preventive maintenance ***depends on the needs and specifications of the equipment***. For example, a device exposed to a dusty environment such as a construction site would need more maintenance as compare to an office environment.

High traffic networks such as those used in schools would **require more extensive scanning** and removal of malicious software and unwanted files.
Do take note that it is important to create documentation for any type of preventive maintenance, so that you can also check how often do certain hardware and software issues occur.
Besides these, here are more **reasons why maintenance should be conducted:**

- Increased data protection
- Extended device life
- Increased equipment stability
- Reduced repair costs
- Reduced equipment failure.

TOPIC 2: Conducting Maintenance

Hardware Maintenance

Maintenance for computer hardware can be done by regularly checking cables, components, and peripherals.

Regular cleaning of components should also be done to reduce overheating. Replacement of damaged components due to excessive wear should also be conducted.

The following is a **guide on conducting hardware maintenance:**

- Remove dust from fans.
- Remove dust from the power supply.
- Remove dust from components inside the computer.
- Clean the mouse and the keyboard.
- Check cables.

TOPIC 2: Conducting Maintenance

Software Maintenance

Software maintenance can be done by making sure that updates are current. Follow the policies when installing programs, operating system, and security updates.

Testing is done to ensure that minimal problems will be encountered when updating the software and hardware.
Here are some simple **tasks when conducting software maintenance:**

- Review and check security updates.
- Review and check software updates.
- Review and check driver updates.
- Update anti-virus files.
- Scan for viruses and malware.
- Remove unused and unwanted programs.
- Scan hard drives.
- Defragment hard drives.

TOPIC 3: Troubleshooting

Although **troubleshooting** varies and can be modified depending on case and experience, it requires an ***organized and logical approach*** when handling computers and components. Doing so will ensure that the process is in systematic order.

Troubleshooting is honed over time. Every time an issue is resolved, skills on troubleshooting are also improved. Through troubleshooting experience, one would be able to know the steps needed to resolve an issue quickly.

The following is a simple process guideline which can also be modified depending on the situation:

- **Explain** the purpose of data protection.
- **Identify** the root of the problem.
- **List** probable causes of the issue.
- **Test** the theory to determine the exact cause.
- **Plan** the course of action to resolve the issue.
- **Implement** the solution.
- **Check** the system functionality.
- If **applicable**, implement preventive measures.
- **Create** documentation of findings, action, and outcomes.

TOPIC 4: Data Protection

Before troubleshooting, **follow the necessary precautions** in order to handle computer hardware and software properly.
Repairs such as hard drive replacement and operating system installation are **very delicate** and may **put computer data at risk**.
Make sure to prevent data loss when attempting repairs.

TOPIC 4: Data Protection

Practicing Caution

Data protection is one of the first steps of troubleshooting.

Computer data must **first be protected** before starting any work on a client or customer's computer.

A technician can be blamed or held liable if data loss occurs because of improper data handling.