Computer Systems

Lecture 2 : Safe Lab Procedure And Tool Use

Objectives

- Explain the purpose of safe working conditions and safe lab procedures

- Identify tools and software used with personal computer components and their purposes

- Demonstrate proper tool use

Safe Lab Procedures

The workplace should have safety guidelines to:

- Protect people from injury.
- Protect equipment from damage.
- Protect the environment from contamination.

Characteristics of a Safe Workplace

- **Clean, organised, and properly lit workspace**

- **Proper procedures for handling equipment**

- **Proper disposal or recycling of components containing hazardous materials**

- **Safety guidelines**

  - Most companies require reporting any injuries, including description of safety procedures not followed.

  - Damage to equipment may result in claims for damages from the user.

  - Types of safety guidelines: General, Electrical, Fire

Types of Interference

- **Electrostatic Discharge (ESD)**

  - Buildup of an electric charge resting on a surface

  - 30 volts of static electricity can damage a computer component.

- **Electromagnetic Interference (EMI)**

  - Intrusion of outside electromagnetic signals in a transmission media, such as copper cabling

  - Sources can be: Man-made, natural events, climate or any source designed to generate electromagnetic energy.

Types of Interference (cont)

- **Power Fluctuation**

  - Voltage in a computer that is not accurate or steady

  - Blackouts, brownouts, noise, spikes, power surges

- **Power Protection Devices**

  - Surge suppressor

  - Uninterruptible Power Supply (UPS)

  - Standby Power Supply (SPS)
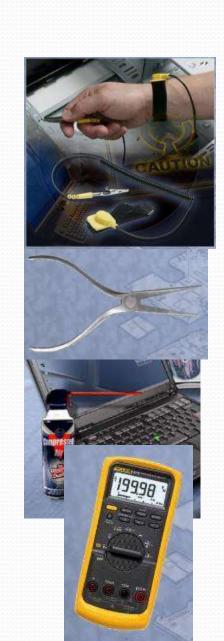
Procedures to Protect the Environment

- **Computers and peripherals contain materials that can be harmful to the environment.**

- Protect the environment by responsibly disposing and recycling:

  - **Material Safety Data Sheet (MSDS):** Fact sheet summarizing information about material identification, including hazardous ingredients that can affect personal health, fire hazards, and first aid requirements.

  - **Proper Disposal**: Comply with policies that specify the procedures for disposing different materials such as batteries, monitors and used printer kits.

Specialised Tools

Skilled use of tools and software makes the job less difficult and ensures that tasks are performed properly and safely.

- **Hardware Tools**

  - ESD Tools

  - Hand Tools

  - Cleaning Tools

  - Diagnostic Tools

Software Tools

Disk Management Tools

- FDISK

- Format

- Scandisk or CHKDSK

- Defrag

- Disk Cleanup

- Disk Management

- System File Checker (SFC)

Protection Software Tools

- Windows Security Center

- Antivirus program

- Antispyware program

- Window Firewall program

Organisational Tools

- Notes
- Journal
- History of repairs
- Internet Reference

Proper Tool Use

- Safety in the workplace is everyone's responsibility.

- Before cleaning or repairing equipment, check to make sure that tools are in good condition.

  - **Proper use of an antistatic wrist strap** can prevent ESD damage to computer components.
    - **CAUTION**: Never wear an antistatic wrist strap if you are repairing a monitor or CRT.
  - **Proper use of an antistatic** mat transfers static electricity away from equipment to a grounding point.
  - **Proper use of hand tools.**
  - **Proper Use of Cleaning Materials**.
    - **CAUTION**: Before cleaning any device, turn it off and unplug the device from the power source.