

TLE – ICT - CSS

QUARTER 2

Week 1



Introductory Message

MODULE 3-Q2 GRADE 9

WELCOME TO THE WORLD OF COMPUTER SYSTEM SERVICING

This module covers the two of seven (7) common competencies in Computer System Servicing which will lead you to acquire a National Certificate Level II (NC II). It contains information and suggested learning activities for you to complete. Completion of this module will help you better understand the succeeding module on setting up computer networks.

This module consists of two (2) lessons and (6) six learning outcomes. Each lesson and learning outcome contains other sub-learning outcome and learning activities supported by each instruction sheets. Before you perform the activities read the information in What's New and What is It, to ascertain yourself and your teacher that you have acquired the knowledge necessary to perform the skill required of the particular learning outcome.

The specific competency covered in this module and their schedule of recitation are as follows:

LESSON 3: PERFORMING MENSURATION AND CALCULATION (PMC)

- LO 1. Select measuring instruments
- LO 2. Carry out measurements and calculations
- LO 3. Maintain measuring instruments

LESSON 4: PREPARING AND INTERPRETING TECHNICAL DRAWING (PITD)

- LO 1. Identify different kinds of technical drawings
- LO 2. Interpret technical drawings
- LO 3. Prepare/make changes to electrical/electronic schematics and drawing

Lesson

3

Performing Mensuration and Calculation



What I Need to Know

Learning Competency: Lesson 3: Performing Mensuration and Calculation (PMC)

Learning Outcomes: LO 1. Select measuring instruments

Learning Objectives:

This module contains unit of competency on “PERFORMING MENSURATION AND CALCULATION (PMC)”. This covers knowledge, skills, attitudes, and values needed to select measuring instruments and its specifications such as memory, data storage capacity, processor, and video card.

At the end of this module, you are expected to:

1. Identify object/s or component to be measured.
2. Obtain correct specifications from relevant source; and
3. Select measuring tools in line with job requirements.

In the previous lesson, you have learned the different ways on how to maintain a computer, file maintenance, how to backup files, and updating your programs and applications. Let's proceed to our new topic.



What's New

A computer memory is just like a human brain. It is used to store data and instructions. Computer memory is the storage space in the computer where data is to be processed and instructions required for processing are stored.

Different computer components have different role for a computer component to work. These types of components and objects are to be measured and should have the correct specification to work properly.



What is It

Computer Memory is any physical device capable of storing information temporarily, like RAM (Random Access Memory), or permanently, like ROM (Read-Only Memory). Memory devices utilize integrated circuits and are used by operating systems, software, and hardware.

There are two types of computer memory. **Volatile memory (RAM)** and **Non-volatile memory (ROM)**. Computer memory is based on the two factors that include access time and capacity. The faster the speed of the memory, the lesser will be the access time.

Categories of Memory

1. MAIN MEMORY OR PRIMARY MEMORY

The main memory unit connects directly to the CPU is the primary memory. Furthermore, there are two types of primary memory:

- A. **Random Access Memory** - RAM is also known as the volatile memory. It is the system's short-term memory. When accessing data and programs that are being processed by the CPU, RAM is the temporary storage until the data is needed. RAM is volatile memory, which means that the contents are erased when the computer is powered off. RAM is measured in megabytes (MB) or gigabytes (GB). RAM can be divided into two categories:
- Static RAM or SRAM – indicates the memory to retain its contents as long as power is being supplied. However, the data is lost when the power goes down due to volatile nature.
 - Dynamic Ram or DRAM - must be continually refreshed to maintain the data.

Types of RAM:

- **EDO RAM or Extended Data Out** - is a type of memory developed in 1995 by Micron and was first used with Pentium computers.
- **SDRAM or Synchronous DRAM** - is a type of memory that synchronizes itself with the computer's system clock.
- **DDR RAM or Double Data Rate** - utilizes both the rising and falling edge of the system clock, potentially doubling the speed of the memory.
- **DDR2 RAM or Double Data Rate Two** - can operate at greater speeds than DDR, offers a greater bandwidth potential, operates on less power, and generates less heat.
- **DDR3 RAM or Double Data Rate Three** - have bus clock speed of 400 MHz up to 1066 MHz, range in size from 1GB to 24 GB. DDR3 RAM sticks for a desktop computer have 240 pins. For a laptop computer, DDR3 RAM sticks have 204 pins.
- **DDR4 RAM or Double Data Rate Four** - has bus clock speeds that range from 800 to 1600 MHz and range in storage capacity from 4GB to 128 GB.

B. **Read-Only Memory** - contains instructions that can be directly accessed by the CPU. Basic instructions for booting the computer and loading the operating system are stored in ROM. Data or information that is stored in ROM keeps its contents even when the computer is turned off. ROM has three categories which are:

- **Programmable ROM or PROM** - is Read-Only Memory that can be modified only once by a user. It can be programmed only once and is not erasable.
- **Electrically Erasable Programmable ROM or EEPROM** - can be erased one byte at a time, rather than erasing the entire chip. Therefore, the process of reprogramming is flexible but slow.
- **Erasable Programmable ROM or EPROM** - can be erased by exposing it to ultraviolet light for a duration of up to 40 minutes.

2. AUXILIARY MEMORY OR SECONDARY MEMORY

Secondary memory is a permanent storage device. It is non-volatile in nature and used to store programs and data when they are not being processed. Because of this, the data remains in the same stage as long as they are not deleted or rewritten from the user's end. A secondary memory includes devices such as:

- Optical disks like DVD, CD, and Blue-ray disks
- Magnetic disks like memory stick, floppy disk, and hard disk drive
- Solid state disks like the thumb drive, pen, and flash

3. CACHE MEMORY

It acts as a buffer between the CPU and the main memory. It is used to hold those parts of data and program which are most frequently used by the CPU. The parts of data and programs are transferred from the disk to cache memory by the operating system from where the CPU can access them.

Data storage capacity. Storage capacity represents how much disk space can one or more storage devices provide. It measures how much data a computer system may contain. For example, a computer with a 500GB hard drive has a storage capacity of 500 gigabytes.

Processor. A processor is an integrated electronic circuit that performs the calculations that runs a computer. A processor's speed is measured in megahertz (MHz), or millions of instructions per second; and gigahertz (GHz), or billions of instructions per second. A faster processor can execute instructions more rapidly.

Video card. A video card is used to process images so they can be displayed on your monitor. An upgraded and faster video card is helpful if you are playing games or dealing with photo and video editing.

Along with this one you may also ask units and measurements as to how memory in computers is measured. We all use a hard disk and a pen drive to transfer the data from one place to another. But what are its units? Computer measures data in many forms such as Megabyte, Kilobyte, Byte, Bit, Nibble, Terabyte, Gigabyte, Exabyte, Petabyte, and many more.

Here are the conversions of these data into one form or another:

8 Bits	-	1 Byte
Bytes (1024)	-	KiloByte (1KB)
KB (1024)	-	MegaByte (1MB)
MB (1024)	-	GigaByte (1GB)
GB (1024)	-	TeraByte (1TB)
TB (1024)	-	PetaByte (1PB)
PB (1024)	-	ExaByte (1EB)
EB (1024)	-	ZettaByte (1ZB)
ZB (1024)	-	YottaByte (1YB)
1 YB	-	BrontoByte
1024 BrontoByte	-	1 GeopByte

In computer memory, **bits** are the smallest memory. While **GeopByte** is the highest memory. 1 bit is the binary unit.

All components in your computer, such as the CPU, the hard drive, and the operating system, work together as a team, and memory is one of the most essential parts of this team. From the moment you turn on your computer until the time you shut it down, your CPU is constantly using memory.

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