

Practical exercise 1

Aim: Know your Digital Lab

1. IC Tester
2. Multi meter
3. Bread Board
4. Trainer Kit

Apparatus: IC tester, multi meter, bread board, trainer kit, connecting wires, etc.

Objective: To become familiar with the digital electronic lab apparatus and learn about functionality of each of the equipment

Theory:

[1] IC tester



Figure 1.1 IC Tester

IC's, the main component of each and every electronic circuit can be used for wide variety of purposes and functions. But sometime due to faulty ICs the circuit doesn't work. Indeed it is lot tedious work to debug the circuit and confirm whether the circuiting is creating problem or the IC itself is dead. So to come up with these sorts of problems IC tester confirm whether the IC under consideration is working properly or not.

[2] Multi meter



Figure 2.1 Multi meter

A multi meter or a multi tester, also known as a volt/ohm meter or VOM, is an electronic measuring instrument that combines several measurement functions in one unit. A typical multi meter may include features such as the ability to measure voltage, current and resistance. Multi meters may use analog or digital circuits—analog multi meters and digital multi meters (often abbreviated DMM or DVOM.)

A multi meter can be a hand-held device useful for basic fault finding. They can be used to troubleshoot electrical problems in a wide array of industrial and household devices such as electronic equipment, motor controls, domestic appliances, power supplies, and wiring systems.

[3] Bread board

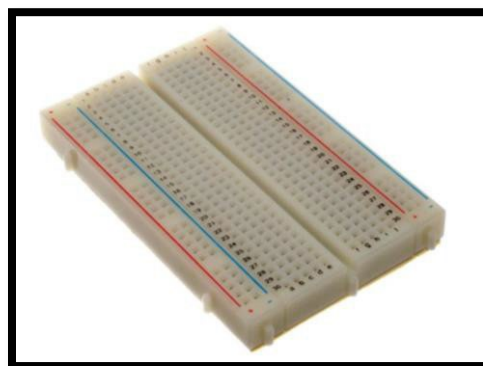


Figure 3.1 Bread Board

Bread board, or is a construction base for prototyping of electronics. Originally the word referred to a literal bread board, a polished piece of wood used when slicing bread. In the 1970s the solder less breadboard became available and nowadays the term "breadboard" is commonly used to refer to these.

Because the solder less breadboard does not require soldering, it is reusable. This makes it easy to use for creating temporary prototypes and experimenting with circuit design. For this reason, solder less breadboards are also popular with students. A variety of electronic systems may be prototyped by using breadboards, from small analog and digital circuits to complete central processing units

[4] Digital trainer kit

Breadboard Trainer kits are used for practicing simple experiments in the laboratory by the college students and those who wish to get trained in it. It is a self-contained laboratory instrument that is generally used for experimenting using a transistor. The DIGITAL TRAINER KIT is a self-contained set of electronic circuits that can be interlinked by students to create working circuits. Component parts cannot be removed or lost in the classroom and interlinking is performed by short colored cables fitted with small insulated alligator clips.

Digital logic is the processing of only two states or conditions of ON and OFF. There are certain electronic chips (called gates) that convert simple on and off conditions to create a third on or off condition. The basic gates are AND, OR, NAND, NOR and NOT. These digital gates are explained and combinations of these simple gates in various configurations

Conclusion: Thus with the help of above components such as bread board, IC, we can implement, simulate and form various circuits and logics.