**PAMANTASAN NG LUNGSOD NG MAYNILA**
(University of the City of Manila)
Intramuros, Manila

# Microprocessor Lab

Laboratory Activity No. 1
**Familiarization with TinkerCAD**

Score

*Submitted by:*
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**Saturday 10:00 AM – 1:00 PM / CPE 0412.1-1**

*Date Submitted*
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*Submitted to:*

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1. Exercise

a. A process in Tinkercad where we can develop electronic circuits that can be quickly updated, modified and tested is called Prototyping Process.

b. In Tinkercad, Start/Stop Simulation tests the working of the circuits and the components.

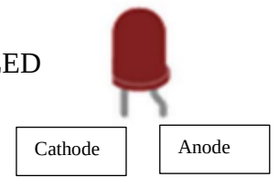
c. The device used to assemble and connect the various components is known as breadboard.

d. In an electronic circuit with LED, the positive end of the circuit should be connected to anode and negative end should be connected to cathode of the LED.

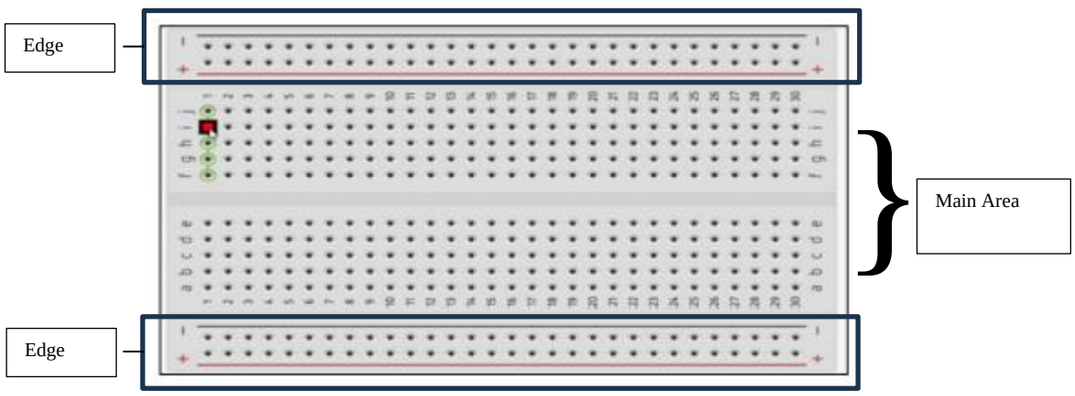
e. A resistor is used to restrict the flow of current to electrical components.

2. Label the following:

a. Anode and Cathode in a LED




b. Different parts of breadboard




c. List the electronic components used in a circuit assembly.

1. Breadboard - Device used to assemble and connect the various components without the need for soldering.
2. Resistor – Restricts the flow of the electric current.
3. LED – Used as indicator lights. It emits light when current flows through it.
4. Potentiometer – Knob that is used to adjust the resistance.
5. Arduino – Microcontroller used for prototyping of electronic projects.
6. Pushbutton - Momentary switch that completes an electrical circuit when pressed.
7. Capacitor - Stores electrical energy in an electric field and releases it when needed.
8. Battery - Stores electrical energy and subsequently discharges it as direct current (DC) upon being attached to a circuit.
9. NPN Transistor - Amplifies and switches electronic signals.
10. Diode - Semiconductor device that allows current to flow in one direction only, blocking it in the opposite direction.
11. Slideswitch - Is a component that may be physically moved into one of multiple locations in order to establish or break an electrical circuit.
12. Micro:bit - Small programmable microcontroller board designed for educational purposes and prototyping.
13. Vibration Motor - A compact motor capable of producing vibrations upon activation.
14. DC Motor – Converts electrical energy into mechanical rotational motion.
15. Micro Servo - A compact motorized tool capable of being manipulated to navigate predetermined places within a restricted scope.
16. Hobby Gearmotor - The combination of a motor and a gearbox result in enhanced torque and improved regulation of the motor's output.

17. LED RGB – This enables the generation of a wide range of colors by modulating the intensity of each constituent color.
18. Photoresistor – This component exhibits alterations in its electrical resistance in response to variations in the level of incident light.
19. Soil Moisture Sensor – Measures the soil's moisture level.
20. Ultrasonic Distance Sensor – In order to calculate the distance, it releases sound waves of high frequency and afterward detects the duration it takes for these waves to reflect off an object and return.
21. PIR Sensor – Component that detects alterations in infrared radiation, specifically pertaining to the movement of things emitting thermal energy.
22. Piezo – It is also known as a piezoelectric sensor and is an electronic device that facilitates the conversion of electrical voltage into mechanical stress or pressure.
23. Temperature Sensor – This component assesses the ambient temperature and transforms this assessment into an electrical signal.
24. Multimeter - A multifunctional testing device employed for the measurement of diverse electrical parameters, including voltage, current, resistance, and continuity.