Learning Material - Experiment in ICT 2

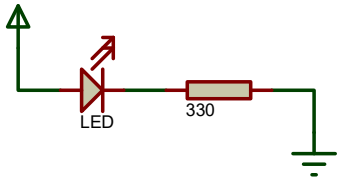
Goal of week

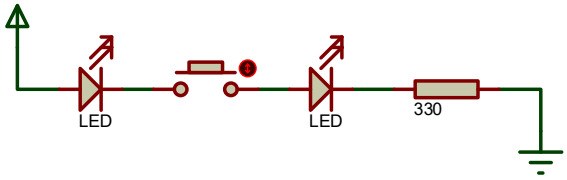
Student will be known how to use basic components such as breadboard, multimeter, LED, switch, and resistor.

Practice assembling circuit and define its activity.

Content

Practice assembling following circuits. Each will be assembled on a separated area of the breadboard.

<table>
<tr>
<td> 

Implement a series circuit with a LED and a resistor. LED on.</td>
<td> 

Two LEDs with button: Push button, LEDs on. Release button, LEDs off.</td>
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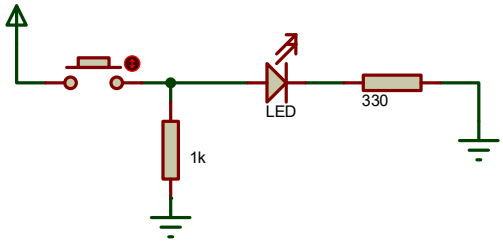
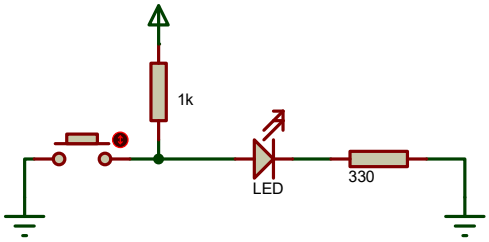
<td> 

Pull-down resistor: Push button, LED on. Release button, LED off.</td>
<td> 

Pull-up resistor: Push button, LED off. Release button, LED on.</td>
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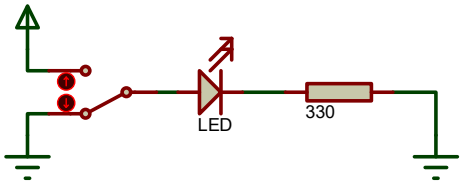
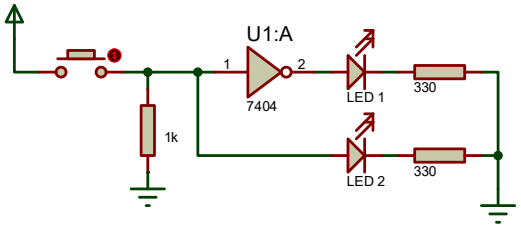
<td> 

Input with SPDT (single pole, dual throw) switch.</td>
<td> 

Implement IC 74HC04 to inverse the input: Push button, LED1 off, LED2 on. Release button, LED1 on, LED2 off.</td>
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Experimental Requirement

1. Equipment Guideline		6. IC 74LS04 (NOT)	x1
2. 5V Power		7. Resistor 330Ω	x8
3. Breadboard		8. Resistor 1kΩ	x3
4. Multimeter		9. Button	x4
5. LED	x8	10. Switch SPDT	x1

Experimental Steps

1. Prepare breadboard with power supply:
    a. Use copper wires to connect 2 rows (power buses) at the top of breadboard to 5V (VCC) and 0V (GND) power.
    b. Turn on the power.
    c. Use multimeter to check that power is available on the breadboard.
    d. **Turn off the power before implementing circuits to avoid short circuit.**
2. Implement all required circuits.
3. Supply 5V power to the circuit.
4. Check all implemented circuit works as expected.

Experimental Report

All students must write down a report, explain everything you do in this experiment with the content:

- Draw circuit's schematic.
- Inform all result getting from this experiment
- Give some remark