

**DESIGN AND DEVELOPMENT OF ELECTRONICS WORKBENCH
(CPUBENCH) FOR EE/ECE LABORATORY**

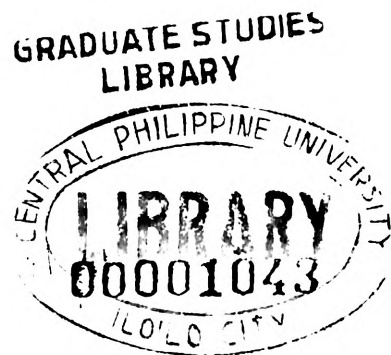
A Research Report

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By

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ABSTRACT

The Electronic workbench (CPUBENCH) for EE/ECE Laboratory was designed based on the basic requirements for the electronics laboratory. This workbench is used when performing the laboratory experiments in electronics, basic electrical engineering and allied subjects. This CPUBENCH has two major sections: the analog section and the digital section. The analog section is composed of AC and DC power supply circuits for analog signal experiments and design. The digital section has eight bits data switch, eight LED logic indicator, square wave generator, and two debounce switch with indicator, used in digital logic experiments, and design and implementation of digital logic circuits. The CPUBENCH was tested for one week of continuous operation at En 204 EE/ECE Laboratory to test the performance and reliability of the design. The parameters tested were the voltage output of the power supply, frequency output and pulse width of the square wave generator, testing for the data switch, and the LED indicator. The regulated power supply has the following measured outputs: 5 V, 12.06 V, and -11.95 V, which are closer to the expected value of 5V, 12 V, and a -12 V respectively. Square wave generator frequency output is 1075 kHz, with a pulse width of 53.76 percent which is closer to the expected value of 1 kHz, and 50 percent respectively. The data switch and the LED were tested for output logic and logic indicator. For logic 1, the switch is closed

and the LED lit up, for logic 0, the switch is off and the LED also turned off. All the functional block of the CPUBENCH were tested, they function normally and are ready for use.