

Product Name : Digital Electronics Trainer	Product Code : NLAB-EDUSCHOOLEQ197019
Description : Digital Electronics Trainer	
Technical Specification : The Digital Electronic Trainer is intended for elementary as well as advance training of digital electronics. The trainer covers regular digital circuits by solder less inter connections through use of 2 mm brass terminations and patch cords. Various clock generators, logic level input / output indicators and DC regulated power supply are in built. The unit housed in sun mica finished wooden box enclosure with provision for safe keeping of mains cord, patch cords and top lid for protection during storage. Trainer: Feature: Breadboards: Unique solder - less large size, spring loaded breadboard consisting of one Terminal Strips with 640 tie points each and 2 Distribution Strips with 100 tie points each, totaling to 840 tie points. (Size: 55mm X 170mm approx). DC Power Supply: 5 V $\pm$ 0.25V / 500 mA (IC based regulated output). Clock Generators: i) Fixed: a. 0.1Hz b. 1Hz. (Simultaneous independent outputs). (TTL, 5V) : ii) Variable: One low frequency variable clock generator. Manual Pulser : One independent bounce less manual Pulser (useful for freezing the action of each stage of the counter after every clock pulse). Logic Level Inputs : Eight independent logic level inputs to select High / Low TTL levels, each with a LED to indicate high / low status and termination. Logic Level : Eight independent buffered logic level indicators for High / Low status Indicators : indication of digital outputs. Seven segment decoder : One BCD to Seven Segment Decoder/ Driver IC with terminations.	

Continuity Tester : Audio / Visual indication.

ZIF socket : IC's up to 40 pin Universal ZIF Socket (without soldering)

Potentiometer: One Potentiometer (100K) with terminations.

Power On : Power ON switch with indicator for mains on indication and fuse for protection.

Patch Cords : Set of 20 assorted colored multi-stand wires with 2mm stackable plug termination at both ends.(Stackable)

Power Requirement : 230V + 10% single phase AC.

Instruction manual : One detailed instruction manual with well thought out experiments covering the above topics

The Trainer Covers The Following Experiment:

Study of basic gates and verification of their truth tables:

NOT: OR AND NOR

NAND: EX-OR EX -NOR

Study and verifications of the law of Boolean algebra and De-Morgan's Theorems.

Study of important TTL terminologies. Verification of important TTL Circuit parameters.

Construction and verification of various types of flip - flops using gates and Ic's:

RS Flip-flop

J-K Flip-flop

D Flip-flop

T Flip-flop

Construction and verification of various types of combinational circuits :

Half Adder

Full Adder

Half Subtractor

Full subtractor

Even / Odd Parity Checker

Multiplexer

Demultiplexer

Binary to Gray Converter

Gray to Binary Converter

2 Bit Comparator

Construction and verification of various types of counters:

Down Counter

3 Bit Synchronous Ripple UP Counter

3 Bit Asynchronous Ripple UP Counter

Ring Counter

Decade Counter

Decade Counter using IC 7490

Construction and verification of 4 Bit Universal Shift Register :

Parallel Input Parallel Output(Parallel load operation)

Shift Right Operation (Serial Input serial Output)

Shift Left Shift Register

Study of 7 - Segment Display And Decoder / Driver.

Many other experiments are possible using the onboard components and Bread board .

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