Experimental Training Board has been designed specifically for the study of ten popular and most useful Linear Integrated Circuits (ICs). The capabilities of this trainer extend far beyond the experiments described. Although only a finite number of experiments have been described yet other circuits as per individuals requirements can also be designed using the available components and power supplies.

Practical experience on this board carries great educative value for Science and Engineering Students.

Object:
* OP-AMP IC 741
The following experiments can be performed :
01.   To measure the quiescent supply current
02.   To null the offset voltage
03.   To measure open-loop voltage gain under closed loop condition.
04.   To measure output resistance
05.   To measure differential input resistance
06.   To measure unity gain bandwidth
07.   To measure the rated output
08.   To measure the slewing rate
09.   To measure the full power response
10.   To measure input offset voltage
11.   To measure input bias and offset current
12.   To measure input noise voltage
13.   To measure input noise current
14.   To measure Common Mode Rejection Ratio (CMRR)
15.   To measure Common Mode Input Resistance (CMIR)
16.   Application as Inverting amplifier
17.   Application as Non-inverting amplifier
18.   Application as difference amplifier
19.   Application as Inverting summing amplifier
20.   Application as Non-inverting summing amplifier
21.   Application as D.C. Voltage follower
22.   Application as A.C. Voltage follower
23.   Application as differentiator
24.   Application as Integrator
25.   Application as semi Log-amplifier
26.   Application as unipolar limiter
27.   Application as bipolar limiter
28.   Application as positive peak clipper
29.   Application as negative peak clipper
30.   Application as AC-DC converter
31.   Application as High Pass Filter
32.   Application as Low Pass Filter
33.   Application as Triangle to Sine Wave Converter
34.   Application as 500Hz-5KHz Square Wave Generator
35.   Application as Wien-Bridge Oscillator
36.   Application as Pulse Generator
37.   Application as linear to log potentiometer
38.   Application as random noise generator

* FET INPUT OP-AMP IC CA 3130
The following experiments can be performed :
01.   Application as high input impedance voltage follower
02.   Application as pulse generator with independent control of ON and OFF periods
03.   Application as active full wave rectifier without using diodes

* HIGH SPEED COMPARATOR IC 710
The following experiments can be performed :

01   To measure open loop voltage gain under closed loop condition
02.   To measure output resistance
03.   To measure differential input resistance
04.   To measure unity gain bandwidth
05.   To measure the rated output
06.   To measure the slewing rate
07.   To measure the full power response
08.   To measure input offset voltage
09.   To measure input bias and offset current
10.   To measure input noise voltage
11.   To measure input noise current
12.   To measure Common Mode Rejection Ration (CMMR)
13.   To measure Common Mode Input Resistance (CMIR)
14.   Application as a comparator
15.   Application as a pulse width modulator
16.   Application as a level detector
17.   Application as Schmitt Trigger
* TIMER IC NE 555
The following experiments can be performed :
01.   Application as pulse width modulator
02.   Application as pulse position modulator
03.   Application as linear ramp generator
04.   Application as 50% duty cycle oscillator
05.   Application as Monostable Multivibrator
06.   Application as Astable Multivibrator
07.   Application as Frequency divider
08.   Application as Schmitt trigger
09.   Application as Event failure alarm
10.   Application as Sine to Square Wave Converter
* FUNCTION GENERATOR IC 566
The following experiment can be performed :
01.   To study the linearity and accuracy of output waveforms

Note: Specifications are subject to change.

* PHASE LOCKED LOOP IC NE 565

The following experiments can be performed **:**
01**.**   Measurement of center frequency 'fo '
02**.**   To study Vco sensitivity and linearity
03**.**   Measurement of capture range and lock range
04**.**   To study locking of V co to harmonic of input signal
05**.**   Detection of F.M. Signal

* FIXED VOLTAGE REGULATOR IC 7812 & IC 7912

The following experiments can be performed **:**
01**.**   To measure Line Regulation
02**.**   To measure Load Regulation
03**.**   To suppress oscillations at input and output
04**.**   To study minimum input to output voltage
.   Difference required for proper operation
05**.**   To increase the output voltage using resistors
06**.**   To increase the output voltage using zener diodes
07**.**   To continuously vary the output voltage

FEATURES

The board consists of the following built in parts :
01.   0-30V D.C. at 500mA, continuously variably unregulated Power Supply.
02.   ± 12V D.C. at 250 mA, IC Regulated Power Supply.
03.   ± 6V D.C. at 200 mA, IC Regulated Power Supply.
04.   1 KHz square wave signal source with variable output level.
05.   100 Hz sine wave signal source with variable output level.
06.   Pulser for generating trigger pulses.
07.   D.C. Ammeter, 65mm rectangular dial with switch selectable ranges of 50 mA,250mA and 500mA.
08.   D.C. Voltmeter, 65mm rectangular dial, dial with switch selectable ranges of 100mV,1V and 40V.
09.   Two toggle switches, NPN power transistor 2N 3055, Transistor BC 177, Two IC 741 Three IC 3130, IC 710, IC 723, IC 3085, IC 555, IC 566, IC 565,IC 7812, IC 7912, Electronic Load, 8 potentiometers, 45 fixed value resistors, 22 capacitors, 3 silicon signal diodes, 3 zener diodes, LED, 3 sets of 3 interconnected sockets each for multi-connections wherever required.

* VARIABLE VOLTAGE REGULATOR IC 723

The following experiments can be performed :
01.   To measure Line Regulation
02.   To measure Load Regulation
03.   To measure Ripple Rejection
04.   Application as basic voltage regulator
05.   Application as Low voltage regulator (2 to 7V)
06.   Application as High voltage regulator (7 to 21V)
07.   Application as increased current output voltage regulator Using external NPN power transistor
08.   Application as fold back current limiting regulator

* VARIABLE VOLTAGE REGULATOR IC CA 3085

The following experiments can be performed :
01.   To measure Line Regulation
02.   To measure Load Regulation
03.   To measure Ripple Rejection
04.   Application as 3 to 23V variable output voltage regulator
05.   Application as fixed voltage regulator
06.   Application as current regulator
07.   Application as High Gain Amplifier (upto 100KHz)

Note: Specifications are subject to change.