

Scheme Code: AICTE-NEQIP/2016/PL/01

Project Laboratory Equipment

SLNO	Items	Quantity
1	100 MHz Channel Digital Storage Oscilloscope	2
2	Multiple Power Supply	10
3	10 MHz AM FM Function-Pulse Generator	10
4	Soldering Station	10
5	4 ½ Digital Multimeter	10
6	DRB	10
7	DCB	10
8	DLB	10
9	LCQR Meter	6
10	Digital IC Tester	2
11	CRO	4

Project Laboratory

Item	Function	Specification	Description	Quantity
100 MHz Channel Digital Storage Oscilloscope	Control knobs: Independent vertical scale & position for each channel. Trigger mode: Edge, Pulse Width, video, Slope, Alternate Math functions: Add, Subtract, Multiply, Divide & 1024 point FFT Parameter measurements :32 Digital Filter & waveform recorder function. Cursor modes: Manual, Auto & Track Adjustable Waveform Intensity & Grid Brightness.: PASS/ FAIL detection, PASS/FAIL output: Save/recall types: Setups, Waveforms, CSV file, Picture Standard Interface's Host: Support US flash driver save/ recall function & update firmware, USB Device: Support PictBridge compatible printer & support PC remote control, RS 232, Pass/ fail output.	Signal Bandwidth : 100 MHz Real time sampling: ax 1 GSa/s Equivalent sampling rate: Max 50 GSa/s 7.0" TFT LCD Color display 2 Mpts memory depth Built-in 100 MHz hardware frequency counter	High quality radio shaped DSO for Project Lab. Should be provided with all required accessories.	2
Multiple Power Supply	Should have Digital Display for voltage and current Protection against overload and short circuit Adjustable current limiter, Constant current & constant voltage.	30V-2A, 0 to +/-15V-1A, 5V-5A Multiple Power Supply DC 0 to 30V/2A ,0 to +/-15V /1A Tracking, 4.5 to 5.5 /5A	Items to be provided with catalogue, annuals and other required accessories.	10
10 MHz AM FM Function-Pulse Generator Counter	Direct display of amplitude Single push for selection functions Variable pulse duty cycle adjustment High signal purity and constant amplitude flatness throughout the entire range Auto ranging 40 MHz Frequency Counter 50 mV rms sensitivity for stable display of external signal frequency Internal Modulation Generator Backlit LCD for display of frequency , mode, amplitude simultaneously	Versatile 10 MHz function generator with sine, square triangle, ramp pulse, TTL & DC Modulation of any signal by AM , FM, PWM PAM and internal sweep.	Items to be provided with catalogue, annuals and other required accessories.	10

	Square wave rise time better than 70 ns			
Soldering Station	<p>Should Include 10 Soldering iron tip (1 installed in the iron) Long Life Ceramic heat Element with removable tip design.</p> <p>Auto Sleep and Wake Functions</p> <p>Vibration sensor in the iron handle that detects movement.</p> <p>Digital Offset Programmable Sleep Function</p> <p>System Lockout Feature 2</p> <p>Quick Jump buttons for favorite settings Switchable between °F and °C</p> <p>24 volt output to prevent circuit damage</p> <p>ESD Safe CE and RohS Compliant design</p> <p>Power consumption: 60 watt</p> <p>Temperature range:200-480 C (392-897 F) 110 V AC ,Configurable Iron Holder, Spare Heating Element,100-130V</p>	<p>Package content:</p> <p>9378 soldering station, B016 Soldering iron, 2660 Soldering iron holder.</p>	<p>Items to be provided with catalogue, annuals and other required accessories.</p>	10

Item	Specification			Description	Quantity
4 ½ Digital Multimeter	Basic Function	Range	Accuracy	<ul style="list-style-type: none"> ➤ True RMS ➤ Large LCD for clear reading. ➤ Metallic screen board with stronger antimagnetic and anti-interferential function. ➤ Full function protection, anti-high voltage circuit design. 	10
	DC Voltage	200mV/2V/20V/200V/1000V	±(0.1%+5)		
	AC Voltage	2V/20V/200V/750V	±(0.8%+25)		
	DC Current	200uA/2mA/200mA/20A	±(0.5%+4)		
	AC Current	200mA/20A	±(1.5%+25)		
	Resistance	200Ω/2kΩ/20kΩ/200kΩ/2MΩ/20MΩ	±(0.4%+5)		
	Conductanc	(0.1~100)nS	±(1.0%+30)		

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Capacitance	2nF/2uF/200uF	$\pm(4.5\%+50)$	
Frequency	20kHz/200kHz	$\pm(1.5\%+25)$	
Special Function			
Diode		√	
Transistor test		√	
Continuity buzzer		✓	
Low battery indication		✓	
Data Hold		✓	
Auto power off		√	
Backlight		√	
Function protection		✓	
Shockproof protection		√	
True RMS		√	
Input impedance		10MΩ	
Sampling rate		2 times/s	
AC Frequency response		40~400Hz	
Operation way		Manual range	
Max. Display		19999	
LCD size		70×50mm	
Battery		9V (6F22)	

Item	Specification	Quantity
DRB	10 step,10Ω-100Ω, 1K,10K & 100K	10
DCB	10pf,100pf,1Kpf,10kpf,100kpf,1Mf	10
DIB	10μH,100μH,1μH,	10
L_C_R Q meter	Adjustable all value (Resistor,Capacitor,Inductor)	6
Digital IC Tester	(TTL & CMOS with Linear IC Tester	2

11. Normal CRO.

Item	Function	Specification	Quantity
30 MHz Analog Oscilloscope s	Sensitivity	1mV/cm	4
	Y-Variables	1:2.5	
	Sweep Delay	Yes	
	Alternate Trigger	Yes	
	Component Tester	Yes	
	Active Sync TV Trigger	Yes	
	Uncal LED Indication	Yes	
	2 level cal output	Yes	
	Hold off 1:10 trigger	Yes	
	Digital freg. Readout	Yes	
	Bandwidth	30 MHz	
	Operating Modes	CH I/CH II/ CH I & CH II, Alt or Chop (freg 0.5 MHz approx.) Add or Sub \pm CH I \pm CH II (with invert switch for both channels, X-Y mode : same sensitivity in both directions (CH I as Y, CH II as X	
	Vertical deflection	Both channels	
	Time Base (T)	As per model	
	Trigger system	As per model	
	Digital freg. Readout	10 Hz to 40 MHz, 5 digit 7 seg. LED	
	Component tester	Yes	
Accessories	Standard		
General	Cathode Ray Tube 140 mm rect flat face with internal graticule and Mu metal shielding, Phosphor P31 display : 8x10cm, accelerating voltage:2 kV (approx, trace rotation on fron panel		
Preferred Model	SM511C/SM410/SM511		

Note:

- (i) Quantity may vary depending upon budget availability.
- (ii) Warranty for all above to be as per Institute's General Terms and Conditions.
- (iii) Items must be supplied with all required accessories.
- (iv) Supply of items to be done at CCCT at stipulated time.