

TENDER NOTICE

Model Polytechnic College (under IHRD), Painavu

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Web: www.ihrd.ac.in, www.ihrdkerala.org

Separate selected tenders are invited for the supply of

Sl. No.	Name of lab	Tender No.	Cost of tenders forms
1	Electronic / Microcontroller lab	No. MPT/MHRD/2014-15/1	Rs. 975/-
2	Communication lab	No. MPT/MHRD/2014-15/2	Rs. 988/-
3	Electronic Workshop and Embedded systems lab	No. MPT/MHRD/2014-15/3	Rs. 1156/-
4	Medical Electronics lab	No. MPT/MHRD/2014-15/4	Rs. 758/-
5	Computer table	No. MPT/MHRD/2014-15/5	Rs. 403/-
6	Basic Electronics lab	No. MPT/MHRD/2014-15/6	Rs. 840/-

Tender details and specifications can be had from the IHRD web site.

Last date and time of receiving tender 22.12.2014, 11 a.m.

Date and time of opening tender 22.12.2014 12 am

N.B - tender cost as per the norms must be accompanied along with the tender in the form of DD in favour of the Principal Model Polytechnic College, Painvu

PRINCIPAL,
Model Polytechnic College,
Painavu, Idukki

MODEL POLYTECHNIC COLLEGE PAINAVU
MHRD - Purchase Proposal 2014-15 - 1

SL. NO	NAME OF ITEMS/SPECIFICATION	QTY RQD
1	<p><u>Universal IC Tester</u></p> <p>Specification:-</p> <p>Tests a wide range of Digital IC's such as 74 Series, 40/45 Series</p> <p>It can test the following items</p> <p>Peripherals 8255, 8279, 8253, 8259 8251, 8155,</p> <p>Microprocessor 8085, 8086, Z80.</p> <p>Tests a wide range of Analog Ic's such as ADC, DAC, Opamp, 555, Transistor Arrays, Analog Switches, Waveform Generator Line Drivers, Voltages References opto couplers, Comparators, Voltages Followers and Others.</p> <p>Display: 16x2 Backlit LCD Display</p> <p>Supply Input Voltage: 230V AC.</p>	3
2	<p><u>8051 Microcontroller Kit</u></p> <p>Specification:- 8051 Microcontroller Kit with Power Supply 8051/89C52 CPU operating @ 11.0592 MHz.</p> <p>32K user RAM using 62256 with Battery Backup using NICD Battery</p> <p>16K bytes of powerful monitor EPROM using 27512.</p> <p>One memory socket is provided for expansion up to 64k</p> <p>48 I/O lines using 2 Nos. of 8255 brought at 26 Pins FRC Connector to interface with IC-XX Series. Three Channel Timer/Counter using 8253 brought out at 10 Pins FRC Connector. 20x2 Alphanumeric LCD Display with Backlite.</p> <p>101 ASCII Keyboard interface using 89C2051 operating @ 12MHz.</p> <p>Two External interrupts INTO & INT1 are available at 40 pin FRC connector.</p> <p>RS-232C using RX/TX of 8051 terminated on 9 Pins D-Type Connector..</p> <p>Onboard Single Line Assembler / Disassembler.</p> <p>Two modes of operation:- ASCII Keyboard Mode.- Serial Mode.</p> <p>Facility for Downloading/Uploading files from/to PC.</p> <p>All Address, Data, Control & Port lines are available on 40 Pins & 10 Pins FRC Connector. All ICS are mounted on IC Sockets.</p> <p>In-Built Power Supply of +5V/1.5A, ±12V/250mA</p> <p>8bit ADC & DAC interface, Stepper motor Interface, Seven segment display Interface, Temperature measurement Interface</p>	20
3	<p><u>Universal programmer & Digital IC Tester</u></p> <p>Specification:-</p> <p>USB port</p> <p>Constructed around FPGA</p> <p>40 Pin ZIF socket</p> <p>Programas 89C58 in less than 4seconds</p> <p>Over current and over voltage protection</p> <p>Remote Laptop programming</p> <p>File format support:</p> <p>Tests TTL 74xxx 54/74,(LS/HC/HCT/ALS/S/AS/F)xxx series</p> <p>Tests 40XX, 41XX, 45XX, CMOS IC's.</p> <p>Freq. generator 125KHz, Freq meter upto 100KHz</p>	2

MODEL POLYTECHNIC COLLEGE PAINAVU
MHRD - Purchase Proposal 2014-15 - 2

SL. NO	NAME OF ITEMS/SPECIFICATION	QTY RQD
1	EPABX specification:- Digital, ISDN ready Analog extensions CO Trunks Maintenance and administration console with PCs DID / DOD facility with CLI Modem for remote maintenance Conferencing facility software and hardware for 3/8 party Voice Mail System Simple In Built Power Plant (FC / BC) Traffic analysis software Billing software with necessary facilities Auto Attendant System Basic Alarm Facility System Security Certain extensions to have '0' dialing facility compatible with existing telephone instrument	2
2	FAX Demonstration kit	1
3	Push button Telephone	30
4	FAX Machine Satisfying ISI standards	2
5	DTMF Telephone Trainer specification:- Handset : Handset connection Port (RJ-45) Key Board : 4 x4 Matrix Key Board Dialer : DTMF (Tone) and Pulse Dialing Redial upto 32 digits, ON/OFF Hook Switch Mains Supply : 220/110, 50 Hz . 60 Hz on request Power Consumption : 2 VA (approximately) Test Points : Test Points are provided to observe various signals / voltages to understand the working of Telephone Speech Path : Non Blocking Dial Pulse Ratio : 66 to 33 % Make Break Ratio (approx.) Input Power : From Internal Power Supply From Telephone Line	10
6	OFC demonstration kit specification:- Frequency range : 1Hz ~ 10Hz, 10Hz ~ 100Hz, 100Hz ~ 1 K z,1KHz ~ 10 KHz Amplitude : 0 ~ 4Vpp (except square) Reference pulse : 660 KHz, 3.2V Fiber optic cable Type : Plastic optical cable, step index, multimode Core refractive index-n1 : 1.492 Fiber diameter : 1000 microns Outer diameter : 2.2 mm Fiber lengths : 15 cm, 1 meter and 20 meter Power supply : +5V, GND, NC, +9V, -9V	4
7	PCM Generation and demodulation using CODEC	1
8	EPABX Trainer kit	

	specification:-	
	Number of inputs : 2 Trunk / Direct Lines.	
	Number of extension : 4 Lines.	
	Standard Features :Tones such as Dial, Busy, Ring etc.	
	Dialing - DTMF and Pulse (Ratio 10pps)	1
	Cross Talk Attenuation : >70 dBm	
	Test Points : More than 25 Nos.	
	Mains Supply : 230 V ±10%, 50 Hz . 60 Hz on request	
	Power Consumption : 40.25 VA (approx.)	
19	Multimedia Computer trainer	
	Specification :-	
	CPU with fan : Intel Celeron above 2.00 GHz	
	Mother Board : Intel Chipset (Optional)	
	Memory (RAM) : 256 MB DDR RAM (Optional)	
	Display Adaptor card : Built in Mother Board	
	Hard Disk : 80 GB (Optional)	
	Floppy Disk Drive : 1.44 MB	1
	Monitor : 15" Colour SVGA (Optional)	
	Key board : Multi Media Key Board	
	Mouse : Scroll Mouse (Optional)	
	SMPS : 300 Watts	
	CDROM Drive 52X	
	Sound Cord : Built in Mother Board	
	Speakers & Mike : Stereo Speakers	
	Video Camera : Web CAM	

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MHRD - Purchase Proposal 2014-15 - 3

SL. NO	NAME OF ITEMS/SPECIFICATION	QTY RQD
1	Bread Board: mounted type 840 tie points	70
2	CRO Probe Holder	5
3	Soldering iron	15
4	Desoldering pump	15
5	Soldering iron stand	15
6	Nose Pliers	10
7	Combination Pliers	10
8	Component Organizer:	4
9	High speed PCB drilling machine:	2
10	Embedded AVR Trainer Kit:	20
11	Public Address System:	1
12	Wire Stripper	
	specification:-	
	Chrome vanadium Steel	20
	Hardened & tempered	
	Stripper additionally induction hardened	
13	Soldering Station	
	Specification	Features
	Power consumption:- 60 W	Heavy duty 60 watts of power, heats up quickly to selected temperature
	Temperature range:- 200-480 ⁰ C	Transfer heat consistently, allow proper solder flow.

	Dimension :- W120*H93*L170mm	Light handle, comfortable grip, no fatigue felling after long use.	10
	Heating elements:-AC24V 50W heating elements	LED indicator flashes when heating, solid when at temp,power switch at the side.	
	Length of cord:- 1.3 meter	Temperature regulated by a knob on the base.	
14	Bread board with wire connectors(174x67mm) in size		10
15	Titan insulated electrical Screw Driver Set with durable chrome		5

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MHRD - Purchase Proposal 2014-15 - 4

SL. NO	NAME OF ITEMS/SPECIFICATION	QTY RQD	
1	<u>Glucometer</u>	2	
	Specification:-		
	Test Sample		Whole blood
	Test Result		Plasma equivalent
	Sample Volume		1.5 micro L
	Measuring Range (mg/dL)		19.8-599.4
	Measuring Time (sec)		5
	Memory Feature		Last test memory
	Battery Type		One non replaceable 3.0 V lithium battery
	Battery Life		4 years
	Operating Temperature Range		12 to 42 C Deg
	Coding		Coding required
	Strip format		Single
2	<u>Heart Rate Monitor cum ECG Trainer</u>	2	
	Specification:-		
	Self contained and easy to operate		
	3 Digit Digital display of heartbeats/minute		
	On board Heartbeat event indicator		
	Separate test points to observe ECG waveforms after each block		
	On board one minute indicator		
User selectable Heart Rate, Bradycardia limit, Tachycardia limit display			
3	<u>B.P. Apparatus</u>	1	
4	<u>Electro-Myograph Trainer</u>	1	
	Specification:-		
	Separate test-points to observe waveforms after each block		
	Provides amplified real time EMG output		
	Inbuilt EMG Simulator		
	Provides information about 10 simulated EMG outputs		
Visible LED indication for all the simulated EMG outputs			
5	<u>Phonocardiograph Trainer</u>	2	
	Specification:-		
	Provides amplified Phonocardiogram output.		
	User selectable filter section.		
	On board Variable gain control facility.		
Separate test-points to observe waveforms after each block.			

	Buffer stage for oscilloscope display.		
	With Real time PCG acquisition software.		
	Self contained and easy to operate and Specially designed for		
6	<u>Heart/Pulse Rate Measurement Trainer</u>	2	
	Specification:-		
	Provide amplified pulse output		
	On board variable gain control facility		
	Separate test points to observe waveform after each block		
	Self contained and easy to operate		
	LCD display for different accuracy level		
	Accuracy +4%		
7	<u>Blood Pressure Measurement (Oscillometric)</u>	1	
	Specification:-		
	Provide accurate value of systolic and diastolic pressure		
	Separate test points to observe the waveform after each block		
	Self contained and easy to operate		
	Provide LCD display facility		
	Korotkoff sound can also be detected using headphone		
	Oscilloscope can be used to observe the waveform		
	Specially designed for educational purpose		
8	<u>Single Channel ECG Telemetry Trainer</u>	1	
	Specification:-		
	Provides amplified ECG output with P, Q, R, S, T, U waves.		
	Inbuilt ECG Simulator and Real Time ECG Measurement System.		
	Provides depth study of all Standard Unipolar and Bipolar Leads Configuration of ECG Measurement.		
	Variable Heart-Rate Generation from 30-300 Heartbeats/Minute.		
	Variable ECG amplitude 200mV ? 4V DC.		
	Every Systole indication is given by LED (visible).		
	Provides 12 leads real time amplified ECG output.		
9	<u>12 Lead Real Time ECG Trainer</u>	1	
	Specification:-		
	Provides in-depth study of Standard Unipolar and Bipolar Leads Configuration for all ECG wave measurement in real time.		
	Inbuilt touch screen 7.5 LCD for examining wave shapes and measurements.		
	Provides on screen information about different types of heart diseases (Bradycardia & Tachycardia).		
	Provides on screen information about leads connection and electrode placement on the patient body.		
	On screen Amplitude and heart frequency calculation.		
	On screen Calculation of wave duration and wave interval		
10	<u>Pulse oximeter</u>	1	
	Specification:-		
	Display type		LCD
	Display area		120mmx90mm
	Power		230V,50Hz AC
	Battery		Rechargeable NiMH 9.6V/1800mAh
	Patient safty		class 1 BF
	Measurment range		0 to 100%
	spO2 Accuracy		±2% for80 to 100%
	Pulse rate range		30-240 bpm

	operating temperature	10-40 deg.c	
	Relative humidity	<855 noncondensing	
11	Water Pourifier:		2
11	Vacuum cleaner:		1

MODEL POLYTECHNIC COLLEGE PAINAVU
MHRD - Purchase Proposal 2014-15 - 5

SL. NO	NAME OF ITEMS/SPECIFICATION	QTY RQD
1	<u>Computer table</u> Specification: - Computer table with keyboard with runner laminated MDF board size 36"x20"x30". The structure made from M.S square pipe of size 2"x1"x1.2 mm thickness. MDF board having 1½" diameter round hole covered with rubber/plastic flap for fitting computer cables at midback of the surface of the table, the cutting edge of the MDF covered with wooden reaper.	46

MODEL POLYTECHNIC COLLEGE PAINAVU
MHRD - Purchase Proposal 2014-15 - 6

1	<u>30 MHz dual trace oscilloscope</u>	
	Specification:-	
	Vertical Deflection(Y)	
	Deflection coefficient (CH1 & CH2)	1mV/div.5mV/div to 20V/div in 12 calibrated steps in 1-2-5 sequence.x5 magmification increases the sensitivity to 1mV/div
	Accuracy	x1:±3%,x5:±%
	Variable	1/2.5 times uncalibrated continuously variable control extende to the deflection coefficient approx to 15V/div.
	Bandwidth	x1:DC to 30 MHz (-3dB),DC coupled.:10 Hz to 30 MHz (-3dB) ac coupled. X5: DC to 5 MHz(DC coupled) 10Hz to 5 Mhz(ac coupled).
	Rise Time	17.5ns.
	Display modes	CH1,CH2,DUAL(CH1,CH2 ALT/CHOP),Algebraic ADD and SUBTRACT,CH2 INVT & X-Y(CH1 as X,CH2 as Y)
	Input impedence	1M ohm/25pF Approx.
	Maximum input voltage	400V(Dc+peak ac)
	Internal trigger signal	CH1,CH2 or alternate,CAT II.
	TRIGGER SIGNAL OUTPUT	
	Output voltage	min 100mV for 1 div of CH1/CH2 trigger signal

TIME BASE Sweep speed	20 calibrated steps,.1us /div to 0.2s/div in 1,2 and 5 sequence.
Accuracy	3%
Sweep Magnifier	x10 magnification increases the fastest sweep upto 10ns/div
Accuracy	±8%
Variable	Uncalibrated continuously variable control between steps,extended slowest sweep speed to .5s/div
Trigger system Sweep mode	AUTO,NORM,SINGLE
Source	CH1,CH2,ALT,LINE,EXT
Slope	positive or negative
Coupling	AC/DC coupling
Trigger sensitivity internal	Auto:0.3 div-20Hz to 20MHz,Normal:0.3 div-10Hz to 20MHz,Lock:2.0 div-50 Hz to 10MHz,Alt≥0.3div-50HZ to 20MHZ
External	Auto:0.3Vp-p-20HZ to 20MHz,Normal 0.3Vp-p-10 Hz to 20MHz,Lock:0.3V to 50HZ to 10MHz,Typical :40MHz
HORIZONTAL DEFLECTION	
Deflection coefficient	same as CH1
Bandwidth	DC-2.5 MHz(-3dB)
Input impedance	1M ohms//25pF approx.
Phase difference	≤3°(DC-60KHz)
Component Tester:Component Tester allows V-I characteristics of a	
Test voltage	7.5V r.m.s(approx)
Test current	20mA max(approx)
Test frequency	50Hz or 60Hz(MAINS)
Continuity tester	Beeper sounds<75 ohm
Auto ranging frequency counter	
Frequency range	10Hz to 50 MHz
Gate10	1sec for<100KHz,0.5sec for>100KHz
Resolution	0.01Hz(10to 99.99Hz),0.1Hz(100 to 999.9Hz),1Hz(1to 9.999KHz),10Hz(10 to 99.99KHz),100Hz(100 to 999.9KHz),1KHz(1 to 9.999MHz),10KHz(10 to 50MHz)
Sensitivity	100mV r.m.s
Accuracy	0.1%±1 digit
2	20 MHz dual trace oscilloscope
	Specification:-
	Vertical Deflection(Y)

Deflection coefficient (CH1 & CH2)	1mV/div.5mV/div to 20V/div in 12 calibrated steps in 1-2-5 sequence.x5 magnification increases the sensitivity to 1mV/div
Accuracy	x1:±3%,x5:±%
Variable	1/2.5 times uncalibrated continuously variable control extends to the deflection coefficient approx to 15V/div.
Bandwidth	x1:DC to 20 MHz (-3dB),DC coupled.:10 Hz to 20 MHz (-3dB) ac coupled. X5: DC to 5 MHz(DC coupled) 10Hz to 5 Mhz(ac coupled).
Rise Time	17.5ns.
Display modes	CH1,CH2,DUAL(CH1,CH2 ALT/CHOP),Algebraic ADD and SUBTRACT,CH2 INVT & X-Y(CH1 as X,CH2 as Y)
Input impedance	1M ohm/25pF Approx.
Maximum input voltage	400V(Dc+peak ac)
Internal trigger signal	CH1,CH2 or alternate,CAT II.
TRIGGER SIGNAL OUTPUT	
Output voltage	min 100mV for 1 div of CH1/CH2 trigger signal
TIME BASE Sweep speed	20 calibrated steps,.1us /div to 0.2s/div in 1,2 and 5 sequence.
Accuracy	3%
Sweep Magnifier	x10 magnification increases the fastest sweep upto 10ns/div
Accuracy	±8%
Variable	Uncalibrated continuously variable control between steps,extended slowest sweep speed to .5s/div
Trigger system Sweep mode	AUTO,NORM,SINGLE
Source	CH1,CH2,ALT,LINE,EXT
Slope	positive or negative
Coupling	AC/DC coupling
Trigger sensitivity internal	Auto:0.3 div-20Hz to 20mHz,Normal:0.3 div-10Hz to 20MHz,Lock:2.0 div-50 Hz to 10MHz,Alt≥0.3div-50HZ to 20MHZ
External	Auto:0.3Vp-p-20HZ to 20MHz,Normal 0.3Vp-p-10 Hz to 20MHz,Lock:0.3V to 50HZ to 10MHz,Typical :40MHz
HORIZONTAL DEFLECTION	
Deflection coefficient	same as CH1

Bandwidth	DC-2.5 MHz(-3dB)
Input impedance	1M ohms//25pF approx.
Phase difference	$\leq 3^\circ$ (DC-60KHz)
Component Tester:Component Tester allows V-I characteristics of a	
Test voltage	7.5V r.m.s(approx)
Test current	20mA max(approx)
Test frequency	50Hz or 60Hz(MAINS)
Continuity tester	Beeper sounds<75 ohm
Auto ranging frequency counter	
Frequency range	10Hz to 50 MHz
Gate10	1sec for<100KHz,0.5sec for>100KHz
Resolution	0.01Hz(10to 99.99Hz),0.1Hz(100 to 999.9Hz),1Hz(1to 9.999KHz),10Hz(10 to 99.99KHz),100Hz(100 to 999.9KHz),1KHz(1 to 9.999MHz),10KHz(10 to 50MHz)
Sensitivity	100mV r.m.s
Accuracy	0.1%±1 digit

3	<u>Analog Oscilloscope 25 MHz, 4 trace with frequency counter</u>
Specification:-	
VERTICAL DEFLECTION (Y)	
Deflection Coefficient (CH1 & CH2) :	1mV/div to 5V/div. 5mV/div to 5V/div in 10 calibrated steps in 1-2-5 sequence.
Accuracy :	x1 : ±3%, x5 : ±5%.
Variable :	1 / 2.5 times uncalibrated continuously variable control extends the Deflection Coefficient to more than 12.5V/div.
Rise Time :	14ns or less.
Display Modes :	CH1, CH2, DUAL (CH1, CH2 ALT/CHOP), Algebraic ADD and SUBTRACT, CH2 INVT & X-Y(CH1 as X, CH2 as Y).
Input Impedance : .	1M ohms // 25pF approx
Maximum Input :	300 Volts (dc + peak ac).
Internal Trigger signal :	CH1, CH2 or Alternate.
Output Voltage :	Minimum 20mV for 1 div of CH1 input signal.
Output Impedance :	50 ohms (approx.).
Bandwidth :	50Hz to 5MHz.
TIME BASE	
Sweep Magnifier :	x5 Magnification increases the fastest sweep upto 20ns/div.
Accuracy :	±3%.

Variable :	Uncalibrated continuously variable control between steps, extends slowest sweep speed to 0.5s/div (approx.).
TRIGGER SYSTEM	
Triggering Mode :	AUTO, NORM, TV-V, TV-H.
Source :	INT (CH1 or CH2) / CH2 /LINE / EXT.
Slope :	Positive or Negative.
Coupling :	AC coupling.
HORIZONTAL DEFLECTION	
Deflection Coefficient :	Same as CH1.
Bandwidth :	DC - 1MHz (-3dB).
Input Impedance :	1M ohms // 25pF approx.
Phase Difference :	<30 (DC - 50KHz).
COMPONENT TESTER	
Test Voltage :	9V rms (No Load).
Test Current :	2mA when shorted.
GENERAL	
Cathode Ray Tube :	140mm Rectangular screen, Internal Graticule, 8 x 10 cm, P31 phosphor.
Accelerating potential :	2kV.
Power Requirement :	220V AC \pm 10%, 50Hz \pm 5%, 35VA(max.).
Dimensions :	140 (H) x 335 (W) x 375 (D) mm approx.
Weight :	7.2 Kgs. approx.
Accessories:	1 Pair of attenuator probe, USB cable, Power cable, Instruction manual

26.11.2014
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