



Govt. of Bihar
MUZAFFARPUR INSTITUTE OF TECHNOLOGY,
MUZAFFARPUR, BIHAR – 842003
(Under the Department of Science & Technology, Govt. of Bihar, Patna)

Notice. No.: 57/TEQIP-III

Dated: 25 /09/2018

Rebid for EMI Lab

M.I.T. Muzaffarpur is in the process of procuring equipment of Electrical Engineering Department under TEQIP-III Scheme. Detail specification are as follows.

Package Name: MITM/EE/EMI

Package Code: TEQIP-III/BH/mitm/95

Interested supplier/bidders are required to give the following information/documents on principal@mitmuzaffarpur.org latest by 30.09.2018 so that invitation for bidding process can be initiated through PMSS.

1. Supplier Name :
2. Address(With Pin Code):
3. Contact Person Name :
4. E-Mail-ID:
5. Mobile No.:
6. TIN/GST No.
7. PAN No.

Sr. No	Item Description	Qty
1	Sensor Trainer Specification of Master Unit: <ul style="list-style-type: none">• DC supply +/- 12V, 500mA, Variable 7V to 14V @ 3Amp.• Built in function generator• O/p waveform- sine, triangle & square, TTL• O/p freq.- 1Hz to 200KHz in ranges with amplitude & freq. control pots, o/p voltage 10Vpp.• On board measurement:• DC volt -2V/20V 1no. & LED BAR graph with 10 LED indicator to display 0-2.5V or 0-4V input. Computer Interface Adapter: 4 ADC Channel, 1 DAC channel & V to I function block, with lab view software based instrument panels on PC screen suitable for various sensor panels.. Operating voltage: 230V +/- 10%, 50Hz	2
	Specifications for following sensor experiment panels:	
a	Strain gauge Transducers <ul style="list-style-type: none">• Piezo resistive transducer for strain measurement• Micrometer 0-20mm (Accuracy 0.01mm) for strain generation	01

	<ul style="list-style-type: none"> • Strain gauges in half & full Wheatstone bridge arrangement. • Zero & span adjustment for calibration with instrumentation amplifier. • Experiments on Gauge factor determination, μStrain indicator, Displacement measurement using Strain gauges & cantilever. 	
b	Piezo resistive transducer for pressure measurement (0-15psi/20psi), Pressure sensor (0-15/20psi), gage type, Pressure generating hand pump connected using T connector to the sensor & Bourden pressure gauge for measurement & calibration	01
c	Force / Weight measurement using piezo transducer (0-20 kg weighing scale sensor).	01
d	<p>Displacement Sensing Transducers</p> <p>Micrometer 0-20mm/(Accuracy 0.01mm) Zero & span adjustment for calibration of following transducers - Resistive linear transducer (0 -20mm), Capacitive linear transducer (0 -20mm), Capacitive angular transducer (0 – 90 degree C), Inductive linear transducer (0 -20mm), LVDT transducer (0 -20mm or -10mm to +10mm)</p>	01
e	<p>Speed Sensing Transducers</p> <p>12V DC motor with speed varying from 0-4000rpm & rotating slotted wheel having 8 slots, Speed transducers: Magnetic pickup, Photo reflective, Photo interruptive, Inductive pickup with envelop detector, Stroboscope, Hall sensor</p>	01
f	<p>Sound Sensing Transducers</p> <p>40KHz gated oscillator to generate Ultrasonic sound waves. Sound Sensors: Ultrasonic Distance measurement, Dynamic microphone as Sound / Audio sensor.</p>	01
g	<p>Light Sensing Transducers</p> <p>Incandescent lamp with variable intensity</p> <p>Light sensors: Photodiode with I to V converter, Phototransistor with I to V converter, Photo resistor/LDR with R to V converter using constant current source, Photovoltaic cell / Solar cell, Opto coupler, Laser diode, Infrared LED, Red LED</p>	01
h	<p>Temperature Sensing Transducers</p> <ul style="list-style-type: none"> · Built in heat bar / mini oven driven by Power amplifier of sufficient wattage · Temp. selection n upto 95 degree C in 5 ranges with ON / OFF closed loop control. · Temperature sensors: Thermocouple J with room temperature calibration pot ii) Thermocouple K with room temperature calibration pot, Thermister (100K), PT100, IC sensor (AD 590), Bimetallic switch 	01
i	<p>Vibration sensor and Air flow sensor Experiment Panel -</p> <p>Vibration sensor i) Operation Range : Audio frequency (2KHz – 8KHz), ii) Power amplifier : 1W capacity as a vibration generator, iii) Piezo electric sensor iv) Determination of acceleration (accelerometer), velocity, displacement components.</p> <p>Air flow sensor : i) Preheated thermister = 100 ohm, ii) DC fan (12V, 1 1/2”) to generate variable airflow in a mini wind tunnel with manual outlet control, iii) Bridge amplifier to O/P 0 = 2V at various temperatures (Fan speed).</p>	01
02	<p>Digital Multimeter:-</p> <p>DC Voltage--600.0 mV to 1000 V, 5 ranges Basic accuracy: ± 0.3 % rdg. ± 3 dgt</p>	6

	<p>AC Voltage--6.000 V to 1000 V, 4 ranges, Frequency characteristics: 40 Hz to 1 kHz Basic accuracy 40 - 500 Hz : $\pm 0.9\%$ rdg. ± 3 dgt. (True RMS, crest factor 3)</p> <p>Resistance: 600.0 Ω to 60.00 MΩ, 6 ranges,</p> <p>DC Current-60.00 mA to 10.00 A, 4 ranges,</p> <p>AC Current-600.0 mA to 10.00 A, 3 ranges,</p> <p>Voltage detection (50/60 Hz) Hi: AC40 V to 600 V, Lo: AC80 V to 600 V</p> <p>C (capacitance): 1.000 μF to 10.00 mF, 5 ranges,</p> <p>Frequency; 99.99 Hz (5 Hz or more) to 99.99 kHz, 4 ranges (limited by the minimum detectable voltage and current),</p> <p>Display refresh rates: 5 times/s (Capacitance measurement: 0.05 to 5 times/s, depending on measured value, Frequency: 1 to 2 time/s, Temperature: 1 time/s) Diode check, Continuity Test</p>	
03	<p>Digital Storage Oscilloscope:- 300MHz, 4 channel DSO with RTS 2GSa/s, 140M memory</p> <p>depth, 140000wfms capture rate, 8" TFT LCD, SPO Technology</p>	01
04	Frequency Meter Training Kit 1-phase, 230V	01
05	Hey's Bridge Trainer Kit 1-phase, 230V, 50 Hz	01
06	<p>Kelvin's Bridge Trainer Kit 1-phase, 230V, 50 Hz</p> <p>The trainer kit contains an I.C regulated +5V @500 mA power supply , digital null detector , Kelvin double bridge , Decade resistances and set of low value unknown resistances .</p>	01
07	Maxwell's Bridge Trainer Kit 1-phase, 230V, 50 Hz	01
08	Schering Bridge with built in regulated power supply 230V AC	01
9	Single Phase Wattmeter Wattmeter. Single Phase. Single element. Dynamometer type. P. F. 1.0	01
11	<p>DC SIGNAL SOURCE - A Hand-Held Field Calibrator for Loop</p> <p>Testing of Instrumentation Systems</p> <ul style="list-style-type: none"> • Simultaneously sources up to ± 25 V and ± 25 mA while measuring up to ± 28 V and ± 28 mA (DC) • Eight thermoelectromotive force sourcing (TC) modes (K, E, J, T, R, S, B, and N) • TEMP measurement from -25 to 80°C • Improved stability and lower calibration costs • Control from a PC via USB connection 	01

12	<p>Data Acquisition System, high-speed data loggers for recording multiple channels of voltage, temperature, pulse or rotation signals, providing complete isolation between channels and strong noise resistance</p> <ul style="list-style-type: none"> • 10 ch isolated, 10 ms recording • DC voltage/ Temperature with Thermocouple/ Cumulative pulses/ Rotation measurement • Realtime recording to CF card or USB memory. It should logs data at 10ms speeds across 10 channels simultaneously, and features a bright color LCD for crystal clear waveform displays. 	01
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Note: Detailed specification of all items will be attached in the invitation letter.

[Signature]
 25.09.18
 Principal
 MIT Muzaffarpur

[Signature]
 25/09/2018